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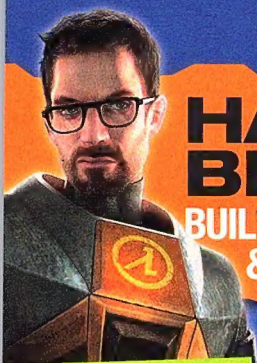
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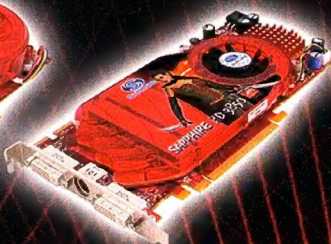
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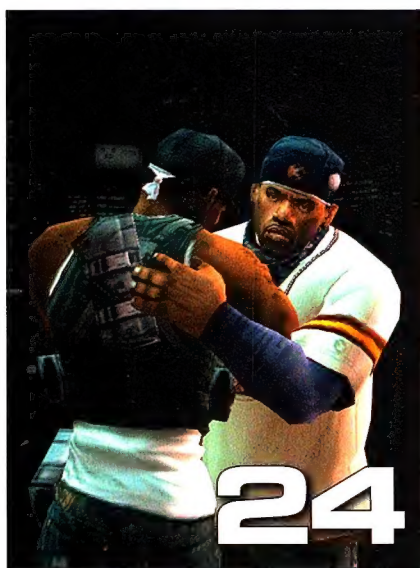


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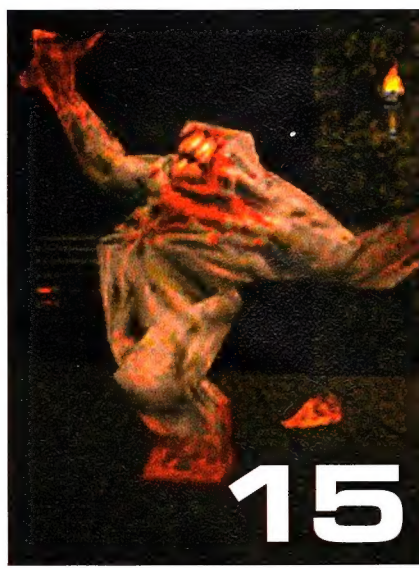
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* may not contain actual nanotechnology, but it reads well.

EDHEAD

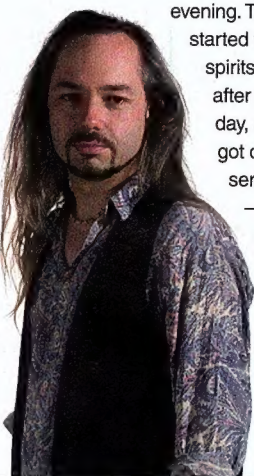
Cold day in Sydney

In all the hustle and bustle of getting ready for Atomic LIVE last month, there was a smaller, more low-key event that kind of slipped under the radar. There I was, happy with LIVE, very happy with my first issue, and generally basking in the warm glow that is Atomic HQ... and then I remembered what a great night the Gigabyte Overclocking Masters was, and that we'd really not shared the joy of the evening with everyone.

Which just isn't on.

The Atomic crew descended on the *Bubble Champagne Cocktail Lounge* at Circular Quay, a swish little joint next door to the Minus Five Bar. We set up a long table and four barebones PC rigs, and then sat back waiting for our guests to arrive – thirty-odd lucky Atomicians who had won their place at the event in the previous weeks. As they streamed in, they joined Lili and Colin from Gigabyte, our wonderful sponsors

and marvellous hosts for the evening. The drinks started to go down, spirits were lifted after a long work day, and then we got down to the serious stuff – world class overclocking, against the backdrop of Sydney Harbour. *Bubble* has an excellent view.



On hand to battle it out for number one was our own Josh Collins, plus Youngpro, Dino and Kayl, three of the hottest overclockers in the country – nay, in the world. You'd think they'd be nervous, but all four were as cool as the eski of dry ice we'd secured to power their overclocking efforts.

The first round was a thrilling bout of 3D Mark benching. The dice were plentiful, but one thing that was lacking was acetone. In a moment of inspiration, four shots of Vodka were called for – sadly, tasty as Vodka may be, it's no substitute for the real thing when it comes to solid sub zero computing. But the lads persevered; after an hour of drama, excitement, and one or two broken motherboards, we finally had a winner – Dino, with a formidable 12,601 3DMarks.

After a quick break, it was on to the Super Pi round. James miraculously resurrected a dead motherboard, while Kayl employed his plate of dry ice as a handy beer cooler to the delight of the happy crowd. But, once more, it was Dino who rose to the occasion, taking out the second round and, ultimately, winning all the loot – a generous swag of Gigabyte hardware.

From there... well, I have to admit things get a bit hazy after that. We kicked on to Minus Five, put some Vodka to its proper use, then got kicked out of Minus Five. It was a suitably chaotic end to a great night of extreme computing, hanging out with Atomican mates, and generally enjoying the view. Major thanks to all our contestants, and of course mad props to Gigabyte for helping us make it all happen.

David Hollingworth
dhollingworth@atomicmpc.com.au

Issue 82 Winners: Five Altec Lansing Sansa speakers: *H James*, Subiaco WA; *M Brasil*, Pymble NSW; *B Lyndon*, Corinda QLD; *G Brown*, Richmond VIC; *C Little*, Wagga Wagga NSW. Five copies of Two Worlds: *D Humphries*, Cooparoo QLD; *M Foreman*, Wynn Vale SA; *E Lucic*, Glen Waverly VIC; *G O'Brien*, Carine WA; *D Wilson*, Greensborough VIC. 30 Days of Night: Five first prizes: *M Walker*, Bilambil Hts NSW; *C Williams*, Waroona WA; *M Szyz*, Adelaide SA; *L Fox*, Salisbury East SA; *R Maguire*, Concord NSW

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Realistic Graphics with Company of Heroes: Opposing Fronts

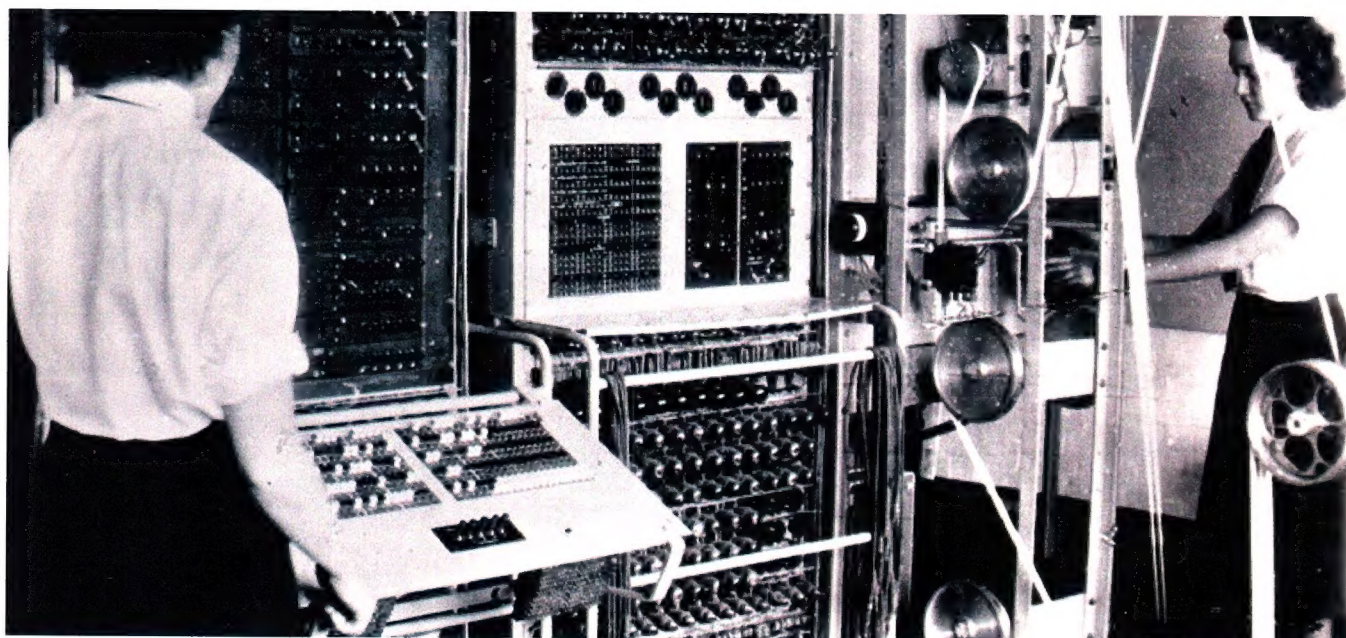
Enhanced lighting effects, mission persistence, improved AI, enhanced physics and a dynamic weather system provided Company of Heroes: Opposing Fronts with a whopping amount of detail and realism that left me shellshocked. This second part of the highest-rated strategy series reveals moodier graphics and environments, and with the EAH3800 series' powerful graphical performance, gamers will be in for a full visual feast.

Great HD Enjoyment with Advanced Graphical Efficiency

Both graphic cards come with the new 55nm chipset design, and allow users to experience high-end graphical performances while running more efficiently and quietly than before; while DirectX 10 support provides enhanced 3D graphics and shading effects from the latest games. With PCI Express 2.0 support, processing power and throughput is effectively doubled in comparison to current AMD PCI Express cards.

Fine-Tuned HD Images with New Splendid Technology

The new ASUS Splendid Video Intelligence Technology utilizes the GPU Pixel Shader to reduce CPU loadings; and allows ASUS' graphics cards to finely adjust Full HD images to deliver vibrant visuals in conditions most favorable to the human eye. This makes watching movies on the PC as good as watching them on top-of-the-line HDTVs. Splendid is also the perfect companion to AMD's Avivo HD technology - providing hardware acceleration for video decoding.



A colossus of computing

David Hollingworth looks back with fondness on 50 year cryptanalysis powerhouse.

Once upon a time there was a magical place for geeks. It was in England, a long time ago, and it was a large manor where the brightest minds in the country gathered to combine their strengths in a fight against a great evil. It sounds a little overblown, but when you get down to it, the work of the code-breakers at England's Bletchley Park at the height of World War II was nothing short of heroic – the stuff that legends are made of.

Some of the great names in computing worked out of Bletchley Park. Probably most well known is Alan Turing – if you don't know this luminary of mathematics and cryptanalysis, you owe it to yourself to do some research. There were 9000 people working at Bletchley during the war years,

and they worked on a number of groundbreaking computing machines to break Nazi codes, making a significant contribution to winning the war for the Allies.

In November of 2007 a working replica of Colossus, one of the five great early digital computers, was completed and put on display at the museum that now operates out of Bletchley Park. A suitable celebration was called for, and what better way to say 'woohoo!' than with an old school cipher intercept challenge – Colossus and the team that built it, pitted against amateur radio hacks from around the world.

The competition was in three parts – three discrete messages (a hard message, a very hard one, and one rated ultra-hard) enciphered

by the Lorenz SZ42 machine in Germany, and then transmitted from the DLOHNF radio station, operated out of the Heinz Nixdorf MuseumsForum. Contestants would have to intercept the transmission, the break the cipher, to win.

Sadly, but perhaps unsurprisingly, Colossus lost, but only because the Colossus team insisted on using only period equipment, compared to the high end radio gear and laptop PCs employed by the amateur breakers. In the end, it was Joachim Schueth who broke the German codes using his own signal processing and decrypt code. But though Colossus was beaten by more than a day, it still completed the task, proving the ultimate success of the rebuilding effort.

Given that all the original machines were literally broken apart (to keep the technology secret, even after the war had been won), the rebuild was a mammoth effort, and we at *Atomic* doff our hats to Tony Sale and his team for providing proof that *Maximum Power Computing* has been around for quite some time.

SHORT CIRCUITS

Ahh Google, 'Don't be evil'. The world-eating internet giant has jumped on the enviro-band wagon in the only way they know how, by pumping millions of dollars into a problem. This time it's into a project that seeks to lower the cost of renewable energy sources, like from that big shiny thing up in the sky. The crusade sets no low ambitions; Google is attempting to cut 50 per cent from production costs of solar energy. So now Google can be in your search bar and your toaster!

Some bands regroup when the royalties from days gone by dry up (The Eagles, Crowded House, Led Zeppelin, The Spice Girls...). Other bands sue game publishers over a minor technicality to make some extra dosh. Guitar Hero Encore: Rock the '80s was the inevitable last squeeze of Activision's Guitar Hero 2 milking. It pretty much slipped under the radar and not too many people noticed. But The Romantics did. Having secured the rights to *What I Like About You*, Activision then decided to include a sound-alike recording by another band on their track

listing. The recording sounded too much like The Romantics, and now Activision is up for unspecified damages. Long live(d) rock!

We knew the Playstation 3 was the root of all evil. A New Zealand 'security researcher' (read: paid hacker), Nick Breese, has made the claim that PS3s can decrease the time needed to brute-force crack a password by a matter of weeks. Fortunately, Breese also reports that for this to be possible he would need "access to one thousand machines". But after that recent price drop...

Enviro Halo

Ever wondered if games or geekery really do mean anything out in the real world? Well, wonder no more...

Master Chief, were he not a thoroughly fictional, alien fighting, futuristic warfare champion, would no doubt take a keen interest in today's environmental crisis, being the deep and emotionally-in-touch new age guy that he is. And Chrysler's latest jeep offering is designed with pleasing the big fluffy eco-bunny that can be found behind the MJOLNIR 2 armour.

Chrysler has settled anxious minds everywhere with the confirmation that the 2008 Jeep Renegade "is an 'eco-friendly' vehicle with minimised use of materials" – which we can only guess means that it is small. Or un-bulletproof. Regardless the Wart... uh Renegade also sports a lithium-ion battery pack, with a range of 65 kilometres. More than enough to defeat any evil alien army. And get home again. Devastatingly, Chrysler has included a small diesel engine; fortunately though its emissions will kill the lambs and baby seals slowly, as it boasts a fuel economy of 45 kilometres per litre but no machine gun. Those are too anti-green. Chrysler sums up its vehicle as being "designed for those who want to [protect] the earth [from invading aliens] while taking care of its future." Unfortunately the vehicle is merely a concept at the moment so don't expect to go a gunnin' any time soon.



Similarly, a keen Transformers fan has modded his 1994 Peterbilt into the latest incarnation of Optimus Prime. He gave it the Xzibit touch by slapping on a sick grill and hot blue and red paint job. Of course, it won't transform but that wombat crossing the road? Doesn't stand a chance. A 17in entertainment system above the Transformers clad bunk means there's no reason to ever leave your ride. Except maybe to scrape that wombat off the grill.

Is nothing sacred?!

James MacLeod ponders true evil...

Recently, while in a position rather further north of our usual Sydney location, we had the opportunity to experience the joys of regional television. There we were, watching the coverage of a major sport event when we were introduced to an unfamiliar beast – local advertising. Apparently only four companies could afford the prestigious advertising slots. The endless, mindless repetition of inane jingles and mind shrinking slogans brought about an intense, burning hatred for all advertising.

Which is why, like many of us, DVDs are an

oasis. A utopia of tranquillity and peace. Hence, when our attention was brought to IBM's latest scheme, we were filled with a rage comparable only to that of a baited fanboi.

The company has filed a patent which details a scheme to include advertising on DVDs. This would work by the way of a DVD player checking the media inserted and then including unskippable, mid-movie advertising. A greedy, selfish, horrid plan. The epitome of corporate greed and evil. Or am I just being overdramatic?

Think to the future. Flying cars – given. Martian colonies – sure. Paper backs – primitive (no! –ed)! Amazon's new electronic book reader, Kindle, has sold out in its first week. The Kindle sports wireless access to over 80,000 books that can be purchased wirelessly. It also provides its readers with newspapers, blogs and magazines country-wide (only the US at the moment) courtesy of a cell phone-esque wireless connection. Such sales for the \$US399 dingus are unprecedented in the book reader market, and prove that many customers are ready to leave behind those old flammable tree-eaters, and embrace a revolution.

Robots. Guitars. Chicks dig 'em. Gibson USA has announced "the first guitar with robotic technology", which pretty much boils down to a guitar that'll tune itself. All you have to do is pull out the master knob (hee hee –ed), give it a strum, and you'll be jammin' in no time. The guitar also includes six different, customisable tuning options. To wrap things up, if you want to change strings all you have to do is poke it though the nut and press the button. Available in a limited first edition run, the Les Paul retails for \$US2500 with 170 of the axes being sent over to Australia.

POST OF THE MONTH

Our very latest entry into our hallowed hall of fame gets down to the nitty gritty of... **BEING A MAN.** And our resident **MAN** is **Takoma**, that wonderful creator of lovingly hand-crafted avatars and generally funny guy. His is not the OP in this instance, but rather offered a response deep into the third page of a very hotly debated topic. Fire up your browser and enjoy all the glory of what we in the office now refer to as 'the man rant':

<http://www.atomicmpc.com.au/forums.asp?s=1&c=1&t=115941&p=40>

And of course there were many other top contenders that both tickle the funnybone, or bring a tear to the eye...

[polite comment about witty discussion that deserves many vague accolades]
<http://www.atomicmpc.com.au/forums.asp?s=1&c=1&t=116107>

Takoma has truly proven his worth this month, with another commended post, this time as he discovers that you can never really go home.
<http://www.atomicmpc.com.au/forums.asp?s=1&c=1&t=116340>

Moz tells a story about his mother-lovin' ways.
<http://www.atomicmpc.com.au/forums.asp?s=1&c=1&t=116738>

And finally, **Baner86** could well be putting some of our game reviewers out of work after has passionate spiel about Forged Alliance.
<http://www.atomicmpc.com.au/forums.asp?s=3&c=12&t=13833>



*Just go and read the post - it'll make sense.

Every Post of the Month wins a fabulous Logitech mouse
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Homebrew: Going strong

Can you smell what James Matson is cooking?

The Dreamcast was an ill-fated machine. While there was nothing technically wrong with the Hitachi SH-4 superscalar fuelled console, competition against the more attractive Playstation 2 and Xbox put many a rusty nail in Sega's games machine, causing Sega to withdraw from console production entirely in 2001. So why mention this relic of button mashing from days gone by? Despite its retail death the Dreamcast is still a popular piece of tech when it comes to 'Homebrew'; an umbrella term for software development – usually taken up by hobbyist coders – aiming to extend the functionality of a console or handheld device beyond its retail scope. The Dreamcast now enjoys a host of devout followers armed with C++ compilers, who regularly breathe new life into the old school platform.

From an evolutionary standpoint it's a fantastic endeavor, pushing initially limited consoles to do more and be more, but the legality of homebrew is ambiguous at best. Enabling production of amateur

apps or games on a console usually starts out with firmware hacking or some other EULA molestation, putting Homebrew in a technology 'grey area' of the law. But like most hazy corners of technology regulation it's not stopping rampant growth in homebrew. Within 24 hours of Sony's PSP slim release (touted as being far more secure against reverse engineering than its predecessor) the handheld was already being successfully poked with a digital stick by various homebrew hackers and can now be loaded with everything from SNES emulators to ISO images of PSP games.

Sony's officially dim view of Homebrew is a

double edged sword. On the one hand it's perfectly reasonable for the company to look down on any activity that allows pirated games to be played on its portable console, but on the flipside efforts to lock down the console result in a stifling of non-pirated software development (and with it a reasonable chunk of sales that would go to people wanting to push the console beyond its limits). Anyone that's familiar with what the Playstation Portable is capable of post hacking knows that a vanilla PSP is like Hentai without tentacles – sadly incomplete.

John Carmack – who recently completed work on *Orcs & Elves* for the Nintendo DS – made his feelings about Homebrew known in an interview with gaming website IGN, "It's a shame that Homebrew development can't be officially sanctioned and supported, because it would be a wonderful platform for a modern generation of programmers to be able to get a real feel for low level design work," Carmack remarked, "to be contrasted with the high level web and application work that so many entry level people start with."

The point is well made; Homebrew isn't just about playing pirated games or preserving the functionality of aging consoles, it's a melting pot of amateur programming and design talent with no less diversity or ingenuity than the indie games development scene on the PC platform. People want to tinker, and even more people want to reap the benefits that amateur development brings.

The only real hope groups involved in making Homebrew have to legitimise themselves in the eyes of companies like Sony, Nintendo or Microsoft is to put increased distance – preferably by means of fancy matter/anti-matter propulsion drives – between their activities and the murkier side of warez and piracy. Even then, it's unclear whether consoles would be any more likely to embrace the wealth of talent (and increased sales) that less strictly controlled console architecture would bring.

“Homebrew isn't just about playing pirated games or preserving aging consoles”

SHORT CIRCUITS



While Blizzard continues to garner all the front page attention when it comes to MMO news, NCSoft has been quietly building up a solid lineup of MMO games under its belt. Already churning out expansion after expansion for *Guild Wars*, as well as the recent launch of *Tabula Rasa*, NCSoft has announced the full acquisition of the *City of Heroes* intellectual property from Cryptic Studios. NCSoft is celebrating the purchase with a complete wipe of debt from all characters. That's the spirit of giving right there.

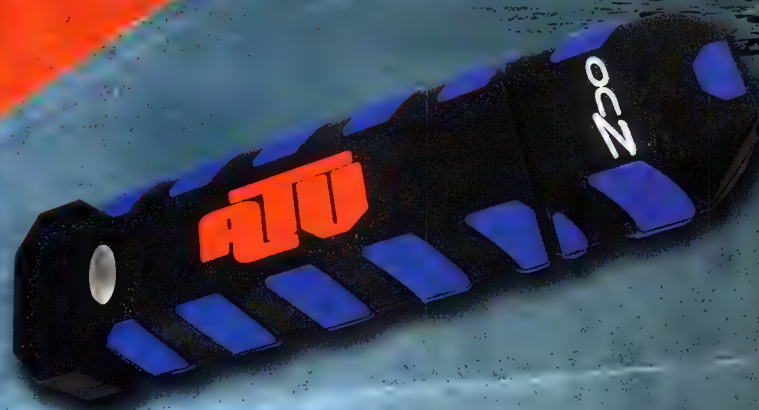
Aspyr Media has announced that *Supreme Commander* – the strategically golden PC RTS – is going to have its console iteration out early next year. "We believe we've raised the bar for RTS gaming on the PC and now, co-developing with Hellbent Games, we know we can do the same on consoles." Tough call, when you consider the limited success of console RTS games in the past.



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SCANNER

Game, industry and online news for the enthusiast

PIPELINE

Marketing Creed

If you've got it, flaunt it?



Following developments with the incredibly polished game *Assassin's Creed* you can't help but come across the face of the game's lead producer Jade Raymond in interviews or online video. In a departure from traditional marketing,

Jade appears to be as much the story as the game she's trying to promote, and there's no clear sense of whether the phenomenon is accidental or not.

Jade happens to be – among other things – quite an attractive woman, which has led to criticism from gamers that she's being used by Ubisoft as the sole spokesperson for *Assassin's Creed* based purely on her looks, and the spotlight isn't being shared among the other developers who contributed to the project (which isn't true, as we've had at least one good chat with lead dev Patrice Désilets –ed). We have to ask what the big deal is. Jade is an integral part of the project, articulate, holds a degree in computer science and through the marvel of natural evolution is a cutie to boot; it'd be madness for a company not to put her forward on the PR frontline. It's age old solid marketing tactics. And yes, just in case you're wondering, if Jade came free with the collectors edition boxed set, we'd be pre-ordering right about now.

Borderlands

Q4 2008

Borderlands is an upcoming fusion of FPS and RPG from developers Gearbox, complete with a refreshingly mouth watering game mechanic – procedurally generated game content. In the same fashion as *Diablo II* (and more recently *Hellgate: London*) *Borderlands* will feature static game maps, but creature and item locations, even the items themselves will be randomly generated. The sheer fun-factor becomes apparent when you consider the nearly endless variety of weapons the game engine will spit out. The system is apparently capable of 750,000+ item variations, resulting in rifles that shoot rockets or rocket launchers that shoot darts. Explosively fun.

[Platform] PC, PS3, Xbox 360

[Developer] Gearbox Software

[Publisher] 2K Games

[Web] www.borderlandsthegame.com

Warhammer Online: Age of Reckoning

Mid/Late 2008

The release date might keep slipping, but for some reason we're no less enthused about the coming of *Warhammer Online*. EA Mythic probably has the best shot of any MMORPG developer to finally bury *World of Warcraft* under a pile of vendor trash simply because *Warhammer Online* carries with it a tremendously strong brand name, loyal followers – everything required to fashion a hallmark MMORPG. Of course we've heard it all before. Time will tell, but with luscious screenshots and an impressively rich world behind it, *Warhammer Online: Age of Reckoning* could be the MMORPG savior we've all been looking for.

[Platform] PC

[Developer] EA Mythic

[Publisher] Electronic Arts

[Web] www.warhammeronline.com

Fluffy cubes

Valve pushes Portal plushie.

Portal snuck into the hearts of gamers the world over with its release, and has shown itself to be the surprise hit of the year. People are *Portal* crazy and Valve – riding the wave of the puzzle game's success – has decided to release possibly the coolest piece of game merchandise in history, the plushie Weighted Companion Cube. We'd suggest rushing out to buy one right now, but

they're marked as 'coming soon' at the time of writing, so we have no idea when you'll be able to purchase one from the Valve store.

Until that time, enjoy the companion cube wallpapers and



other community *Portal* goodies, and continue to confuse ordinary folk with the question of whether the cake is indeed a lie.

SHORT CIRCUITS

Gamers with a few years behind them might remember a title called *Populous*. Released for the now extinct Amiga platform, *Populous* was a fantastically addictive sim game where you played God and got to build a civilisation and hurl heavenly destruction upon your enemies. It's been announced that a remake is underway for the Nintendo DS, and we couldn't be happier. Early screenshots indicate EA games has the right look; here's hoping the playability is there too.

Ghostbusters is an old franchise, but apparently not too old to be milked for cash in the form of a video game. Developer Zootfly recently confirmed that it is indeed working on a game that will feature all the sliming and crossing-of-the-streams that we adored from the goofy 80s comedy movie. Let's just avoid mentioning *Ghostbusters 2*, shall we?

How *World of Warcraft* continues to attract new players to its world astounds us, but nonetheless it keeps happening, with over 300,000 new subscribers suiting up as Elves, Undead and Dwarves since July this year. "We're thrilled that gamers around the world have continued to embrace *World of Warcraft* so enthusiastically," said president of Blizzard Entertainment Mike Morhaime. With another expansion on the horizon, it seems *WoW* is a cash cow not yet ready to be put out to pasture.

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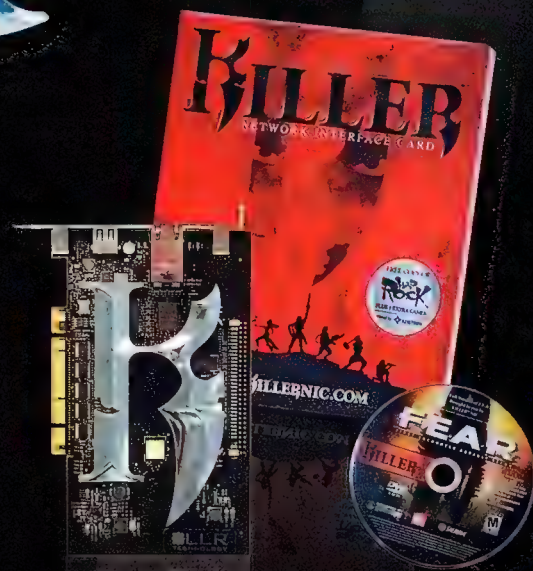
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TOMORROW'S TECHNOLOGIES - TODAY

ATOMICCHAT

Talking to the finest human beings on earth...

CHAT



Tim Willits

Tim Willits continues his chat with Alexander Gambatto-Burke – this time he shares with us his take on the FPS as a genre

atomic Is the FPS as we know it in jeopardy?

Tim Willits: Like, in jeopardy, as in is it still popular? And, I mean, I think the answer is no. No, it's not in jeopardy; there's a lot of room to grow. Players expect more from games these days. People want to experience more. They want more from stories; they want more from environments. And there are a lot of great games that have just been released in that FPS genre, that have evolved. The pure, arcade-y shooter is definitely going old-school. But the new games are definitely expanding. The title we're building, *Rage*, for example, is built on that first-person genre, but we've blown out the gameplay. We have driving combat, racing, adventure elements... The genre isn't in jeopardy. It's growing.

atomic To what extent, and in what form, do you think the 'arcade-y' FPS will persist?

Willits: Will it exist in some form? Well, it's definitely shrinking, and I think where you see legs with that is in some of those marketplace downloads with the 360 and the PS3. For example, we released *Classic DOOM* on Microsoft Download, and it was super successful; Microsoft was thrilled. And we're developing a *Quake* title for that download, so you can have these smaller games in a kind of environment that limits itself to

that arcade-y, instant action setup, which is what you get with those downloadable games. So I think the evolved FPS will be turning the tables, and the older, pure FPSs will be moving towards the downloadable environment.

atomic What defines the FPS?

Willits: There's definitely an identity issue with the FPS these days, and I think that's because people are really trying to do more and more. It's difficult to attach a genre to games. I mean, look at *BioShock* – what is it? Is it an adventure, or an FPS? I think that's great. I think people should evaluate and judge games by how fun they are, and what experience they offer, rather than, "Oh, it's an RTS, and I won't enjoy it," or, "It's an RPG, and it's too complex for me." It does make it more difficult to do that when you can't pinpoint the genre. It's a good time for game design.

atomic From a game designer's perspective, is developing something with a genre in mind counterproductive?

Willits: It's not counterproductive; it lets you build. It should be a brick in the house, you know? For



us, it's the foundation of our house. But there's no reason you can't have other bricks – RTS bricks, and RPG bricks. And then you build a house, and you stand back from it, and it may have these different elements, but holistically, it looks unique, it plays unique, and it is unique.

atomic Would you say id is driven by technology?

Willits: Well, with Rage, we're experimenting more with the design, because it's not super cutting-edge technology. But we are technology-focused. We have John Carmack. If we didn't have John, it would be easy to say, "Oh, we do whatever we want." But it's silly to have the world's greatest game programmer, and not use him. We have John. That's why we do it.

I believe that Quake was more influential to our society as a whole, because of what it spawned.

atomic Would you say the FPS itself is largely driven by technology?

Willits: The genre itself has been driven by id. John invented the technology. People say that DOOM was very influential to our industry, and it



Remember when this was pretty much the scariest thing you could ever see in gaming?

was, but I actually believe that Quake was even more influential to our society as a whole, because it spawned clans, pro-gaming, and everyone wanted fast internet connections to play it online. And then Quake III was the first game that required hardware acceleration, so that kinda legitimised the whole video card industry. And then, with DOOM 3, John did bump maps, specular maps, and all that stuff you find in Unreal 3, Crysis, and Source. That's all because of John. And let's not forget that every time you pick up a shotgun in a FPS and pull the trigger, you need to thank id Software. The industry is tech-driven, because John has driven the industry.

atomic When Quake III and Unreal Tournament hit shelves, it seemed that the future of the FPS was largely to be found in online content. Do you think this is still the case?

Willits: Well, what doesn't really work anymore is single-player games that are also great multiplayer

games. That's because it costs so much to make, and they're so hard to write, and gamers expect so much. So what you find is a great multiplayer game – like Enemy Territory – and great single-player games, like BioShock. So it's not like we're losing single-player or multiplayer; it's that you either make a truly great single-player game or a truly great multiplayer game. Interestingly, though, we do find that more people still play by themselves, rather than online. There was some crazy statistic about Battlefield that said that there are a shocking number of people who never go online; they just play with bots.

atomic In what directions, other than graphically, has the genre advanced since Quake?

Willits: Oh, you know, story, physics... The stories are getting much better. The physics technology is awesome; animation is making characters more believable, too. And the multiplayer is bringing gamers together, and that's evolved significantly. The social interaction in gaming will grow, and it's making our world smaller and smaller. You can get online now and play with people from all over the world, and I really believe that, in time, you'll see a more cooperative world, because people are coming together and playing games. They'll grow up and become presidents and politicians, and I think the world will then be a much more peaceful place. Because of gaming. (F)

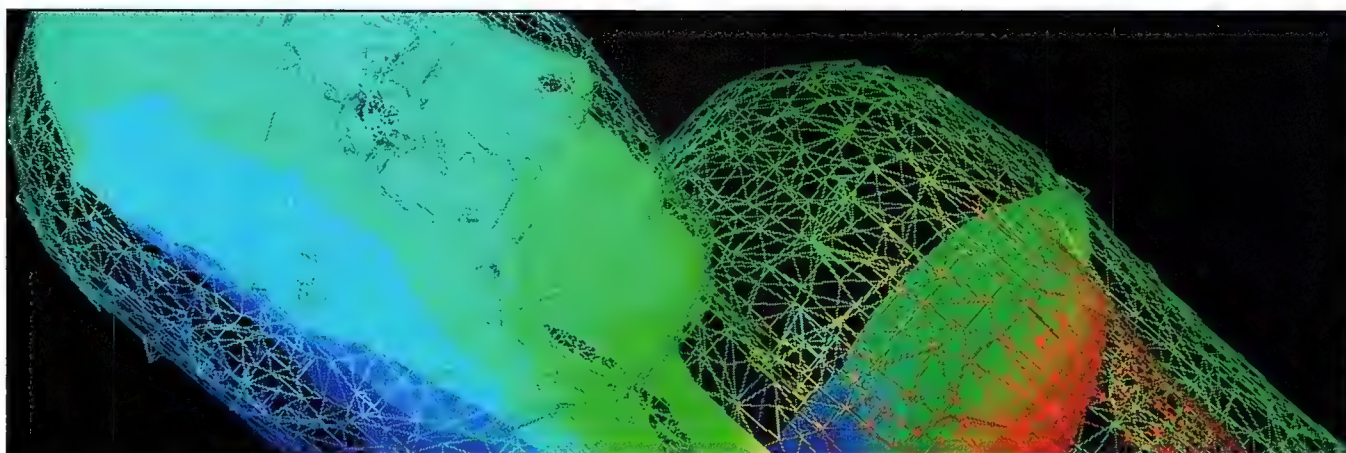


Quake III seemed like an odd beast at the time – a game with no single player campaign? What?!



ATOMICX-RAY

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tech from
the inside



X-RAY

Inside you

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We've peeled back the layers and peered into a great many technologies and science to do with computing in these hallowed pages, but so far we haven't covered the greatest computer of all – you.

Deoxyribonucleic acid

Also known as *DNA*, deoxyribonucleic acid is the genetic blueprint of who you are – not just your body, but also your abilities, traits, limitations, and even intelligence. It's your master plan, the source code to your soul (oh alright, maybe everything *but* your soul).

You may already have heard about *genotyping*, often used to determine biological parents of children, as a means of utilising DNA to find out about an individual – but it goes further than this. Much, much further.

For example susceptibility to certain diseases, ancestral trees, and even traits such as whether you like the taste of sour foods, or whether you're a morning or night time person can all be traced back to your genetic makeup. In many ways, while you're a creature of free will there are some parts of you that were predestined before you were born.

Which is kinda heavy to consider, so before we get onto that, how exactly do those biologist boffins determine all this?

Mapping humanity

As a race we've known about DNA for a long time. Back in 1869 Friedrich Miescher discovered what he called 'nuclein' in the nucleus of a cell. Subsequent discoveries by Phoebus Levene in 1919 and William Astbury in 1937 revealed the composition and general structure of the nuclein and it became known as DNA. In 1953 thanks to Rosalind Franklin, James Watson, and Francis Crick the model was refined and published in the

scientific journal *Nature*, showing the double-helix formation we're familiar with today.

And then, in 1990, began one of the most important scientific projects of our time – the mapping of the human genome. The term 'genome' is a combination of 'genes' and 'chromosome', where chromosomes are strands of DNA that contain genes. Genome is used to refer to hereditary information, and thus represents the DNA which sets you and I, and everyone else, apart from each other.

And it's a lot of information. Fun fact: if the human genome were a book it would be over a billion words in length. Although DNA strands are around 2.5 nanometers in width, unwound, the human genome would stretch some 1.8 meters. And this DNA, this billion word book of information, is contained within the nucleus of every single cell in your body (except red blood cells, sperm, and eggs, which is another story).

You might wonder just how it is we can map

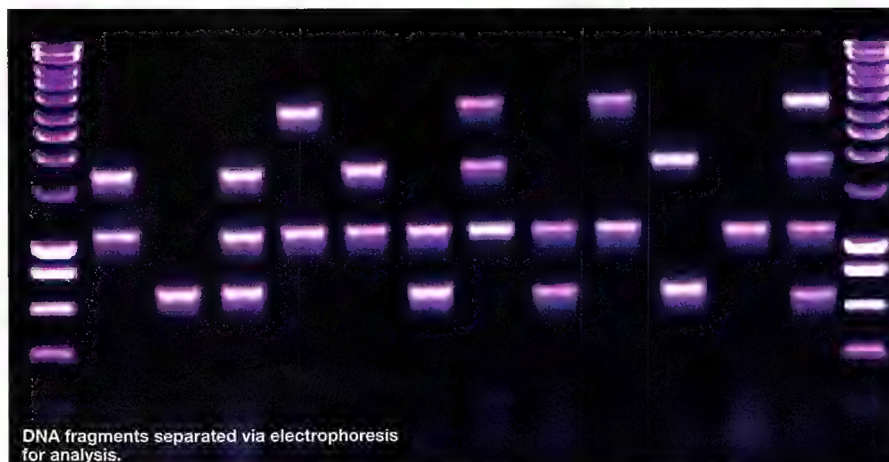
our own genome. It actually starts by cataloging the genetic markers of people and then looking for overlaps, correlations, and differences. That's the easy part. The hard part is then isolating the differences to determine what effect they have – and this is an ongoing project that's part science and part trial and error.

In what's known as a *consensus map*, genetic markers for particular traits can be determined by looking at the genetic information of people with those traits compared to those who don't. The process is rather complex, but involves replicating DNA (by heating and cooling DNA strands, unwinding and duplicating them in the process) and then analysing it through *gel electrophoresis*, the result of which you will have seen on TV before – those trendy shaded bands of DNA fragments.

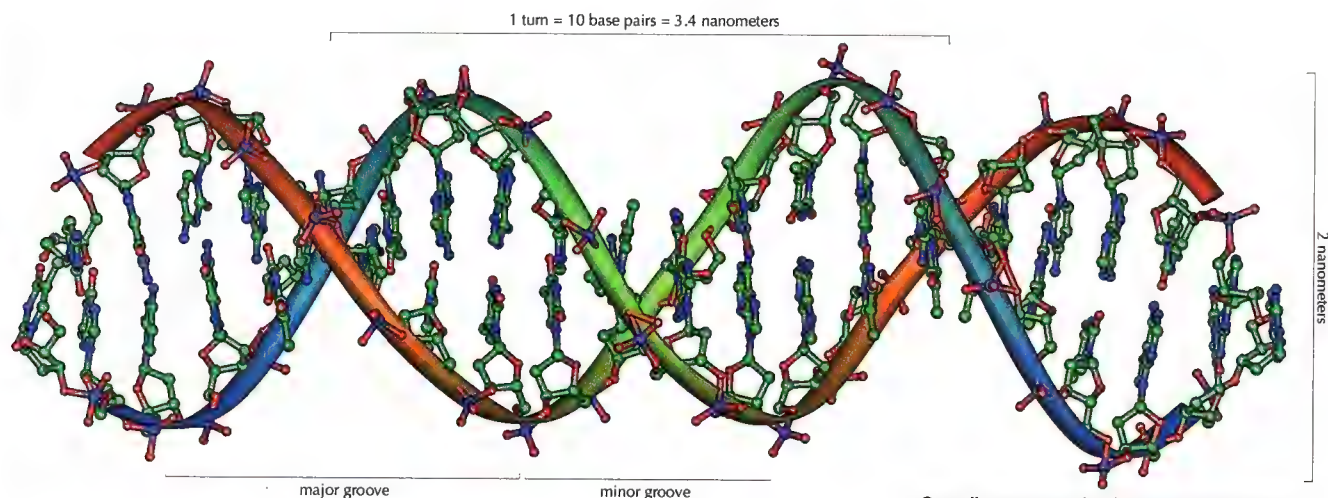
What's in a name?

So just what constitutes DNA? The short answer is a chain of chemical compounds called *nucleotides*. The chain consists of *base pairs*, complimentary opposite nucleotide strands that bond together with hydrogen bonds and ultimately encode genetic information – aka the classic 'double-helix' structure you've seen before.

Information is encoded through four essential



DNA fragments separated via electrophoresis for analysis.



Complimentary nucleotide strands bonded in a double-helix – DNA. Source: Wikipedia

chemical compounds – adenine (A), cytosine (C), guanine (G) and thymine (T). As a result when DNA base pairs are discussed you'll usually see them abbreviated to a sequence of letters, such as ATCGAT. 'C' bonds only to 'G', and 'A' bonds only to 'T'. Thus the complimentary sequence for ATCGAT is TAGCTA.

A gene is a locatable paired sequence that can determine particular traits for everything from your physical build to your circadian rhythms. All up the human genome consists of 23 chromosome pairs totaling some three billion base pairs. The largest chromosome, chromosome 1, alone contains 220 million base pairs. It's estimated there are between 20-25,000 genes encoded in the human genome.

But volume is not indicative of ability – scientists have discovered a single celled amoeba with some 670 billion base pairs, substantially more than humans.

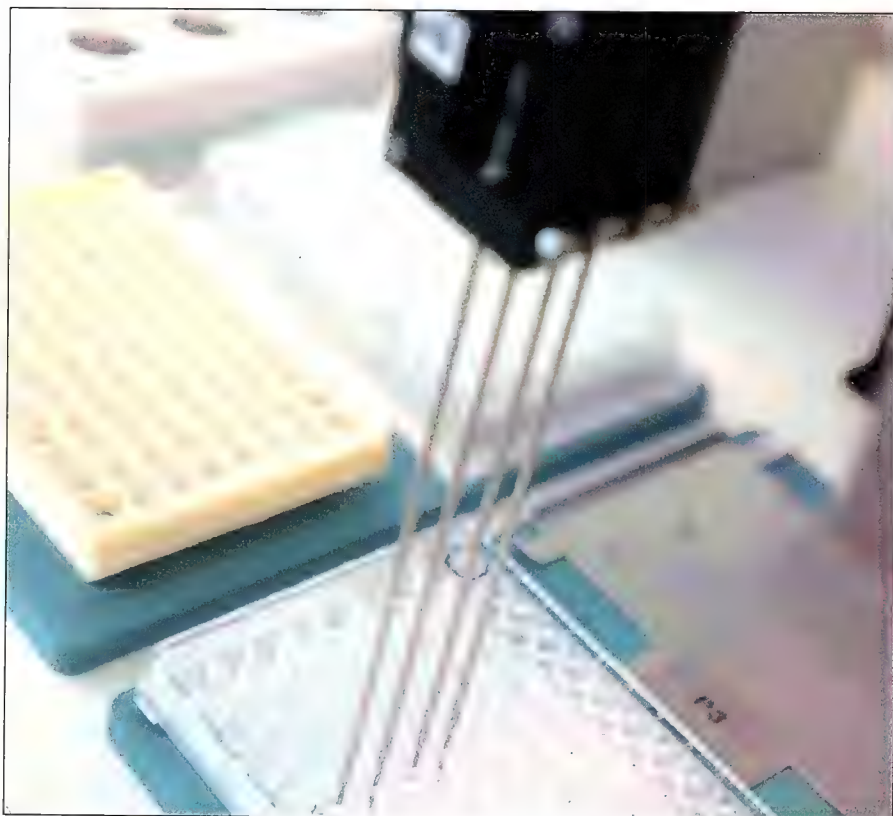
Interestingly, a key function of differentiation between human beings comes down to very small changes in our DNA. A slight alteration of a genetic sequence, such as from 'AAGGCTAA' to 'TAGGCTAA' for example, is known as a *single nucleotide polymorphism*, or SNP. SNPs constitute the majority of genetic discrepancies between people, making up an estimated 90% of all genetic variation in human beings. In fact, 99% of human DNA sequences are the same across the population – in other words, a very small part

of the human genome through very small changes creates the complete variations of the human race – skin color, hair, body shape, intellect, health, and much much more. Human beings are far more alike to each other than different, which just goes to show how silly racism or religious differences really are. Inside, we really are all the same.

Knowing yourself

There are now services available, in the States at least, that will catalog your DNA and provide comparisons for genetic disorders, susceptibility to disease, personal traits, ancestral backgrounds, and more.

Called *Bioinformatics*, it's still an emerging field but already it's possible to submit your DNA and learn an awful lot about yourself – genes can determine everything from your propensity to be a morning or night person (yes, geeks now have a



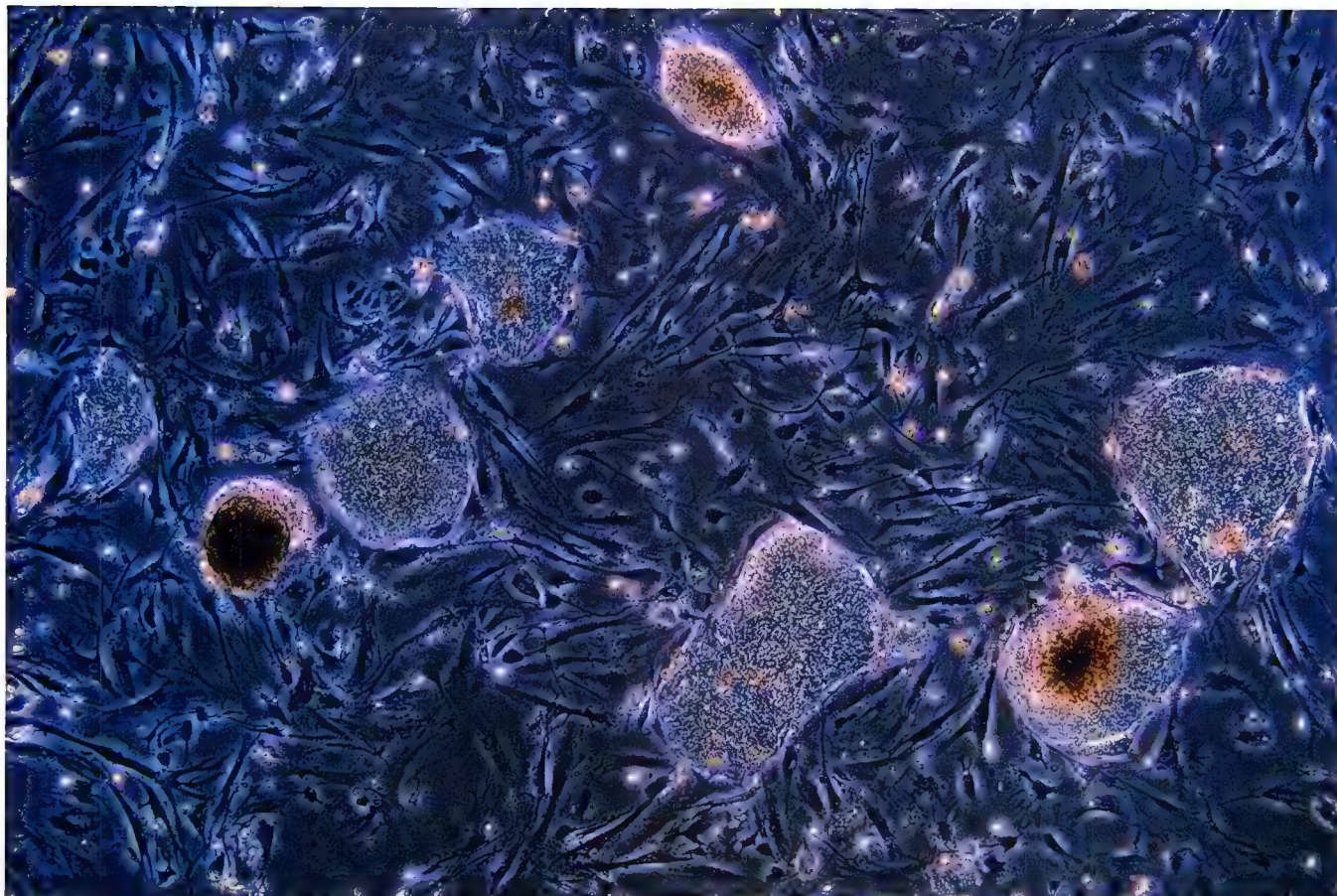
PLASMIDS

Bacterial DNA

Plasmids



And you thought 'plasmids' was just a cool name for upgrades in *Bioshock*. Plasmids are actually real and constitute molecules that are capable of autonomous replication and augmenting the DNA of cells. Plasmids are frequently found in bacteria, and often contain genes that can confer a survival advantage – it's plasmids that allow bacteria to become resistant to antibiotics. Plasmids can be transferred to other bacterial cells through *conjugation*, a means of horizontal gene transfer (where genes are transferred to an organism which is not offspring. By contrast vertical transfer is when genes are transferred from a parent, as with humans).



genetic excuse) and whether you'll go bald in old age, to your preference for particular foods and susceptibility to different types of cancers. You can learn your chances of contracting diabetes, heart disease, Alzheimer's or even mental illness. From the very big changes, to the very small, your genetic makeup is a map of your life. At least, to some extent – knowing that you might have a long life expectancy doesn't stop you being hit by a car.

But there are limitations to the science, too. While there are thousands of genes that have been mapped, their purpose might change as more is understood about their effects, especially with regards to the greater whole of many genes interacting together.

And in terms of ancestry, while some services promise to find just where you came from, it's largely non-information – they might tell you who your immediate relatives could be, but any further than that and the picture blurs quickly, and it says nothing of race movements across the globe, and where your ancestors may be located.

It's curious information, but not terribly useful.

Ethical dilemmas

Being able to peer into your genetic makeup raises a number of ethical dilemmas, however.

On the positive there's a distinct advantage to knowing what diseases you may be prone to – knowledge is power, and if you knew for example that you were prone to heart disease you might decide now to exercise more regularly and reduce the risk.

Personalised medicine is also a looming possibility – treatments tailored exactly for your genetic makeup, and much more effective than blanket solutions.

Sound good so far? But what if your insurance company had access to that same information, and decided to price your policies based on your life expectancy or inclination to particular diseases? Or if you didn't get a job because your employer decided a particular SNP wasn't in their interest? Now we have genetic discrimination. Discrimination, it's worth noting, that you have no control over – you didn't get to choose the genes you were born with.

And would you really want to know your child's genetic makeup? You might treat them differently

as a result, in turn affecting their development and producing a different person. And if you could genetically engineer your baby – and it's predicted this will be possible – would you? Do we need humans to become an Aryan-like race?

Is it really good to know what your own predispositions and predilections are? It would be all too easy to blame your 'genes' for your behaviour and choices, rather than take responsibility for your life. While we all don't get to choose the cards we are dealt, we do choose how we play them.

It's an interesting can of worms we have to face sooner or later; one way or another we are heading to popular genotyping of the individual. If you haven't seen the movie GATTACA (note the title comes from pair bond sequences), now is a

WHEN CELLS DON'T DIE

If you remember your biology you'll know cells replenish themselves by dividing, and when they do DNA is copied from one cell to the next with each divide – but not always perfectly. Some parts of the DNA strands can be cut off, creating incomplete copies; this is aging. A good analogy here are VHS tapes: you can copy a tape again and again, but each copy has more and more noise in it, degrading the original.

An adjunct to this is that cells will generally divide some fifty times before dying. Brand new cells are produced from stem cells, and the process repeats. Just like ourselves, cells have a limited lifespan and are designed to die. And if you think about it, you can see why this is important – genetic changes through cell division that gradually get worse are removed when the cell dies. Cancer is what occurs when a cell forgets to die – it continues to divide with its mutated DNA, and very quickly becomes a problem for the body. It's also how particular types of radiation, such as from the sun, can cause cancer: radiation damages the DNA within a cell, which then continues to divide with the damaged DNA.

ATOMICCHAT

Talking to the finest human beings on earth...

CHAT



Andy Cargile

Alex Gambotto-Burke catches up with Microsoft's Andy Cargile to talk about mice and men.

atomic After closing the brand in 2003, why has Microsoft decided to resurrect the Sidewinder line of games peripherals now?

Andy Cargile: Well, Microsoft, as you know, has one of the best brands in gaming with Sidewinder. We decided to really focus more on input devices for the PC, and now, as you know, much of the games industry is moving towards peripherals that are like mice and keyboards. So that really urged us to get back into gaming, because we can now focus on key peripherals that gamers are using for the different games that are coming out. Last year, you saw us come back into gaming with the Intellimouse 3.0 and the Habu mouse, on which we partnered with Razer. And part of that is that we want to go back in and really understand the audience; we want to make sure that the very first mouse we come out with now stays true to the principles and values of the Sidewinder brand when we had it, and I think you'll see that reflected in the Sidewinder Mouse.

atomic How have you gone about ensuring this?

Cargile: We've really taken it up a notch in terms of the attention to detail that consumers are really focusing on now. We did a lot of things, like we talked to 200 competitive gamers across the world, and we've been to several gaming competitions.

Our user research team would actually go and watch how people died in the gaming competitions, to find out what we can do to make a difference there.

atomic So what features did you come up with?

Cargile: Well, in all our research, we found two things. One is that everyone really had different opinions about everything – settings, customisability, et cetera. But at a higher level, one theme emerged, and that was immersion. When gamers are going into a game, they really want to focus on it; they don't want to be distracted by anything else; they want to go in and play. And that's one of the things we had in mind when we started on this mouse.

So, we have three areas of features that fit within the theme of immersion. One is customisation. As you probably know, gamers at a competitive level have very specific tastes about what they like, and what they don't like. Everyone will argue on bulletin boards about what the best weight is for a mouse, and what the best feel is for a mouse. So what was clear to us is that one size does not fit all. We've had to accommodate a wide range of preferences in the mouse we designed. So things like our weight system are important – we have 35 grams split up into three

ten-gram weights, and one five-gram weight, so you can choose the weight for your mouse. This stemmed from one of our funny experiences at gaming competitions, where you'd see gamers with our Intellimouse 3.0, and they'd have washers on the sides and front of the mouse to weight it differently.

We also have three sets of feels for the mouse



— from the teflon-impregnated plastic, which basically has a very smooth feel, to one with more of a grasp to it. You want a really slick mouse if you want to move quickly, but if you need to stop quickly, you'll want one with more of a grab. So we provide that. We've also got three DPI buttons that are pre-set at 400, 800, and 2000, and that allows gamers to have a range of DPI settings. If you're in an FPS, and you're running around and shooting a lot, you want fast response, so a setting like 2000 DPI is really good. But if you've got something like a sniper scope, you don't want to have that same amount of responsiveness, as the area you're moving around is very limited. So that's where 400 DPI is useful. But like with everything else, gamers have differing opinions on this stuff, so we also allow them to change those pre-set settings. We've got a whole software macro system on the mouse, as well as other special features like quick movement. So if you're in an FPS game, you can imagine enemies coming at you from all around, and imagine you're running forward with something chasing you, you hit a button and you can turn 180 degrees instantly. So with just the press of a button you can turn around, shoot the thing behind you, and keep running.

And we also have a whole macro-recording system. You can record macros before you get into the game, or you can capture a particular macro sequence and tune it down in the mouse's macro editor. There's also the in-game macro-recording utility, so you can record a certain sequence of movements, and capture them on-the-fly.

atomic Finally, how would you say the gaming peripherals market has changed since the Sidewinder brand was closed?

Cargile: Well, the peripherals market has really changed to reflect the nature of gaming. There's more diversity, there's more performance, games are getting more complicated, and more visually lavish. The spread of games into different genres is getting broader and deeper, and users are spending more and more hours playing. Different kinds of gamers are coming into the picture, too, so diversity and complexity are two words I'd use to describe how the games industry has changed over the past five-to-six years. And I think peripherals reflect that. An FPS mouse today is something very different to an FPS mouse from several years ago, and even then, what works really well in an FPS mouse might not work so well in an RPG or RTS game. Games have gotten so competitive now that the merest fraction of a second can make a difference.

It's very similar to high-end sports; it's a bit like downhill skiing, actually. If you look at downhill skiing in the '30s, and then in 2000, I think what you'll find is a whole different ballgame in terms of competitive edges and differences in terms of sporting equipment. It's become very sophisticated to allow the best skiers to perform in that competitive environment, and I think that's what you find in the peripherals market. As the games get more competitive, and the edge between gamers gets narrower, the tools really need to match so that gamers can get the most out of the game.

“An FPS mouse today is very different to an FPS mouse from several years ago, and even then, what works in an FPS mouse might not work so well in an RPG.”



Gaming can be a big business, like any pro-sport. And like pro-sportsmen and their custom-made equipment, pro-games need custom peripherals.



I don't buy it

Don't you just love it when Ashton Mills gets cranky? We do – he's so damn cute.

The world is a rather large piece of rock. It has seas and continents and countries – and for the simple fact of distance – there are many disparate regions of the world. People and places are physically separate from each other, by orders of magnitude small and large as far as miles and kilometers go.

And this new fangled internet thing we have, there's a wonderful facet to it: there are no borders. It's one place, just as it's one world. I can send data around the globe and back in less than a second – there are no distances, no far places; it's all at my fingertips. It's at all our fingertips.

A fact which apparently escapes Activision.

When *Call of Duty 4* was released on Steam, it was priced at \$US49.95. Just over ten days later, the price was changed to \$US88.50. A price, it's worth noting, that is more expensive than the boxed version of the same game available off the shelves here retail.

In response to the inevitable flak, Valve responded that it doesn't set pricing for the games it distributes via Steam. The price change was courtesy of Activision, which then responded saying the original price was 'incorrect' and the \$US49.95 was an oversight. *Call of Duty 4* should actually cost Australians over \$AU100 for the download version, while the boxed set sells for around \$AU80 in the shops.

Wait... wait a second! Are you trying to pull the wool over our eyes Activision, you old dog you? Perhaps you think Australian consumers might forget these blisteringly obvious facts: digital distribution has no disc replication, no manual printing, no box printing, no boxing, no shipping, and no storage costs. Let alone less management, staff, and point of sale costs. Even the cost of getting the game – downloading 6GB – is footed by the user with their own bandwidth. In other words, it's an *order of magnitude cheaper* to distribute digitally.

Yet Activision would like to generously charge you 20 percent more!

And let's be clear – the game a US citizen downloads is identical to the one an Australian downloads. If the product is worth \$US49.95 in the US, it's worth \$US49.95 anywhere in the world – there are no borders, remember. No boundaries, no continents, no regions, no demarcation zones, nothing whatsoever to the slightest degree that separates data piped to a US purchaser and an Australian one. Not even millisecond packet trips, thanks to Steam's torrent based distributed delivery.

In other words, Activision is bending you over and taking you for all you are worth. So what will your response be?

“ In other words, Activision is bending you over and taking you for all you are worth. ”

If the issue is that the online product *is* cheaper than the boxed set at retail, I don't buy it. Wake up call Activision – that's a problem for you, not the consumers. Either don't sell a boxed set, don't sell online, or if you want both, recognise the online version is a different, cheaper product and let economics do the rest.

Valve doesn't get to walk away from this scott free either – after all, Steam makes region-pricing possible. Hasn't the DVD region coding debacle taught you anything? The cake is a lie, you know.

I was going to buy *Call of Duty 4* at \$US49.95 via Steam. Now I'm not. I urge you, as Atomicans, to not buy the game as well. If you've already bought it, sell it second hand, let others enjoy it without giving Activision further reward from new sales. If the company

can't understand this here interweb thing, it will understand the bottom line.

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TREND



WHORE

Christopher Taylor takes notes on the fads, movements and ideologies in games that've managed to piss us off over the years.

The videogame does not exist in a vacuum. That much should be clear. Otherwise we wouldn't end up with classy little gems like Hezbollah's *Special Force* or V-Tech *Rampage*, the delightfully offensive indie title that came out only days after the Virginia Tech massacre. We wouldn't get *Grand Theft Auto* games either. And we'd probably have missed out on the Orwell-inspired *Half-Life 2*.

As much as any other medium – and perhaps even especially, seeing as the target audience is young, fickle and prepared to spend stupid amounts of cash on amusing themselves – games are subject to all manner of external influences. What's hot in the cinemas and what all the cool kids are listening to on their iPods. The political climate. And fads. Yes, fads. Trends. From gangsta rap to ricing up imported cars.

Sometimes, these influences make for better games. Other times... well, let's just say we could do without all those characters who regard their sidekicks, allies and assorted cronies as brothers from different mothers. Army of Two, we're looking at you.

Call this a chronicle of the trends, the social attitudes, the movements and the daily annoyances that have made their way from the real world to the virtual worlds of *City 17* and *San Andreas*. From the daily grind to the fictionalised, digitised versions of New York City, twelfth-century Damascus and the Middle East (as in the gigantic, monocultural, utterly evil Arab country that's the setting of such games as *Call of Duty 4* and *Battlefield 2*). Enjoy, bitches.

PARKOUR

AS
SEEN
IN

Assassin's Creed, Crackdown, Free Running, Marc Ecko's Getting Up, Mirror's Edge, Prince of Persia series, Splinter Cell series, Tomb Raider series

Ah yes, parkour. Free running, if you will. Now, the sport itself – or, at least, the idea behind the sport – isn't particularly new. Nor, for that matter, is its inclusion in games. Lara Croft and Sam Fisher were both using parkour moves to navigate their way around tombs and Georgian cop shops years ago.

But then along came all those YouTube videos and documentaries like *Jump Britain*. Pretty soon, even Daniel Craig

was jumping from cranes and diving over fences. Parkour became a one of those words. A term that Jade Raymond and her ilk could throw about with gay abandon, trying – in vain, we may add – to not sound like Dr. Evil during his "I'm hip, I'm with it" speech.

Free running went from something that was, well, just there – Ubisoft never really made a point of explaining that Sam Fisher's various athletic and gymnastic abilities were, indeed, parkour techniques – to something that could be used to promote games. "Yes, this game is set in the twelfth century, but look, the hero here is jumping all about the place like some delinquent British kid on speed. See? He's running freely. He's doing parkour. And that's cool and popular and you've seen it in *Casino Royale*!"

Despite our cynicism about using the sport to sell games, virtual parkour hasn't yet reached the stage where we regard it as truly tiresome. It's not yet a bullet time. *Assassin's Creed* managed to implement parkour reasonably well. This was in stark contrast to *Free Running*, a fairly obscure 2005 title that, we suppose, was to parkour what *Tony Hawk's Pro Skater* was to skateboarding. Only, you know, free of the shackles of such things as quality and entertainment value. Here's hoping that games like *Free Running* remain uncommon.

Annoyance rating: 3

URBAN LYF

AS
SEEN
IN

25 to Life, 50 Cent: Bulletproof, Def Jam: Fight for New York, Def Jam: Icon, Grand Theft Auto: San Andreas, Marc Ecko's Getting Up, Saint's Row, True Crime: New York City

With *San Andreas*, man, that shit was right. Ain't Rockstar be trying to sell no niggas no half-assed games. But *True Crime* and Fiddy Cent's title? Damn. That be some weak-ass shit. Goddamn cracka-ass bitches, they mostly ain't know a damn thing when it comes to making games about da thug lyf (Argh! My brain! –ed).

We don't, as a decidedly bitter Marc Ecko once accused us gamers en masse, have a "bug up our arse" about everything 'urban'. This here writer doesn't mind a bit of the old Tupac every now and then, played the hell out of *San Andreas* and is an obsessive fan of David





"Join the army, lads, You'll get fed three square meals a day. It's just like Counter-strike..."

Simon's Baltimore epic, *The Wire*. See? No bug. No arse.

So, Mr. Ecco, allow us to explain why we didn't think you shit was right. Your game, like most other 'urban' games, was no *San Andreas*. Beyond the glaring gameplay issues that many titles in this genre have, the dialogue that is spewed from the characters' mouths is, for most the part, embarrassing to even hear. And worrying. Worrying to know that someone, somewhere was actually paid to write that drivel. In a just and fair world, such a person would not be handed a cheque, but get the thousand cuts treatment with a snapped *Bulletproof* disc. Or get several caps busted in their arse, yo.

This fad successfully manages to drive us nuts on several levels. Why? Not due to the fact we have invaders in our anal cavities, as suggested by Mr. Ecco, but because the vast majority of 'urban' games are little more than half-arsed cash-ins riding like retarded dolphins in the wake of such 'artists' as the aforementioned Fiddy. Or celebrity vandals-cum-fashion designers. Believe.

Annoyance rating: 8

ME

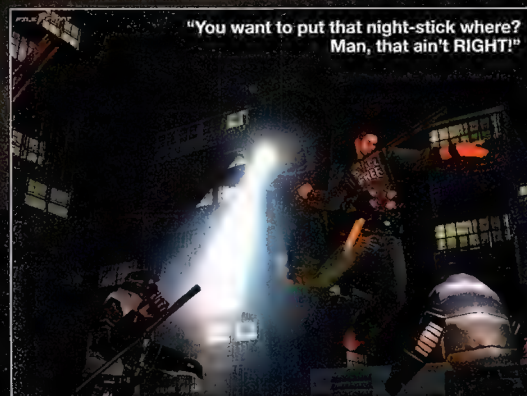
**AS
SEEN
IN**

**Battlefield 2, Battlefield 2142, Enemy Territory:
Quake Wars, Wolfenstein: Enemy Territory**

The current generation has been accused of being somewhat, well, self-centred. Supposedly we, as Generation Y, er, people, have inflated senses of self-worth. Of entitlement. Of knowing it all and not giving two shits about anyone but ourselves. Strong but accurate criticism? Uncalled-for nastiness from folks who've let their glasses develop a distinctly rosy tint? You decide. One thing's for sure, though, the points made in this argument apply to far too many of the players you'll find in online shooters like *Quake Wars* and *Battlefield 2*.

A good part of the problem is that games in this genre tend to rely heavily on persistent scoring systems and stats databases to keep the punters playing until the arrival of the inevitable sequel. *Battlefield 2142* may be promoted as a team-based affair, but ultimately it was the promise of personal glory, unlockable weapons, gamer points and virginal noobs to violate that drove a lot of players.

We know that the inclusion of this "me, me, me, that Cobra helicopter belongs to me" business in this article will offend some readers. We know full well that it'll provoke some of you to toddle over to your computers, click your way to the magazine feedback forum and suggest that maybe we stop being such whiny bitches, join a clan and stick to private servers. A valid argument when dealing with someone that's serious about their *Battlefield*, but be realistic; all of that's just too much work for the average punter who wants to come home after a tough day at the office, crack open a can of something suitably alcoholic or caffeinated, join a regular GameArena server and enjoy themselves running about the Middle East with an M16 without having to deal with a pack of 'tards only concerned with boosting their stats and earning medals.



Dice's decision to bring awards and persistent scoring into the Battlefield franchise may have been done in the name of extending the game's longevity and rewarding loyal customers, but didn't really work in practice. Should they have been aware of what was going to happen? Well, looking back at the days of *Wolfenstein: Enemy Territory*, a game in which half of any given server could be relied on to ignore the objectives until they'd managed to rack up enough kills to unlock the akimbo Lugers, we think so.

Annoyance rating: 8

PERSONALITY

AS
SEEN
IN

Fahrenheit, Half-Life 2, Kane & Lynch: Dead Men,
The Nomad Soul

For whatever reason, people with a rather bizarre attribute called 'personality' tend to be popular in real life. We're certain it's just a passing phase. A mere fad like parkour or those daft slogan t-shirts half the girls under twenty seem to own.

In all seriousness, it's refreshing to see games developers making a real effort in creating believable characters. Alyx Vance and her father, along with the rest of Mr. Freeman's pals, just added so much to the *Half-Life 2* experience.

For too long we as gamers have been forced to deal with personalities that can be boiled down to something like this: "This is the Master Chief. He's tough and quite the alien genocidaire. He takes his orders from a blue girl and hangs around with the token black guy". Or this: "This is Lara Croft. She has tits. They're big. They're bouncy. Oh, and she carries guns and kills stuff. And sometimes she jumps."

Don't get us wrong. Sometimes we do like mindless games, but really, it's time for games, as a medium, to grow up a little. The adoption of that slightly weird fad – interesting, endearing, likeable personalities – by games developers is one we approve of whole-heartedly. Unless, you know, developers view it as an excuse to neglect the gameplay. Not that we're accusing you of anything, *Kane & Lynch*.

Annoyance rating: 2

POST SEPTEMBER 11 NATIONALISM

AS
SEEN
IN

America's Army series, Call of Duty series, Full Spectrum Warrior series, Medal of Honour series, Night of Bush Capturing, Quest for al-Qaeda, Quest for Saddam, Postal 2, Special Force series, Special Operation 85, Under Siege series

The world changed after 11 September 2001. No doubt about it. And as we said earlier, games, as a medium, don't exist in a vacuum. The list of games that could and have been accused of harbouring and disseminating nauseatingly patriotic messages goes on and on.

Now, before you get overexcited, we're not saying that games that have a few drops of the good ol' nationalism thrown into the mixing bowl during their development are inherently bad. At least not when it comes to gameplay. We're big fans of *Call of Duty* and loved *Medal of Honour* during its sunnier *Allied Assault* days. It's just that, damn, the whole 'warriors of the West sacrificing themselves nobly for freedom and democracy' tosh in the latest Duty instalment was a bit much. We reckon it's second only to the fascinatingly crap console-only *Medal of Honour: Rising Sun* when it comes to the gung-ho factor. Yes, we know, there's *America's Army*, but we feel that's unfair competition for any commercial title. What, with it being 'The Official US Army Game' – a propaganda piece that pulls no punches with its message, which basically boils down to: "Join the army, lads, you'll get fed three square meals a day. It's just like *Counter-Strike* and is as much fun."

Don't think we just have a bug up our arse, to commandeer Marc Ecko's expression, about the Americans and the Brits, though. The sup-

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posed bad guys are equally guilty of coming out with games that are unashamedly jingoistic. Take the *Special Force* series, for instance. Pretty much, it's Hezbollah's answer to America's Army. "Join Hezbollah, lads, you'll get three square meals a day. It'll be loads of fun and you'll get to plug Zionists."

And that brings us, in a roundabout way, to our main gripe with these games – they inspire tit-for-tat bullshit. When some dickhead in the US comes out with a game like *Quest for Saddam*, there'll be some equally dickheadish chap in downtown Baghdad who'll release something along the lines of *Night of Bush Capturing* – aka, *Quest for Bush*.

Again, we do enjoy some of the games we mentioned on the list above. It's just that we long for the day when a *Call of Duty* game doesn't just offer American and British campaigns, but Iraqi and 'Ultrationalist' ones too. Yes, it'd be 'challenging' and perhaps even offensive to some to step into the combat boots of the baddies, but we can't say we've ever cared much for that sort of person. At the very least, Infinity Ward could lay off having moustached Brits tie up, torture and then righteously dispatch dastardly Arabs before even ensuring that the information that said dastardly Arabs provided on the Evil Plan was correct. We enjoyed *Modern Combat* as a game, but at times it was far too reminiscent of the television series 24, in which the Arabs always get it in the end and Kiefer Sutherland solves all of America's problems with his gun, his fists and, when he's in a real spot of bother, his teeth. Please save that shit for Fox. Infinity Ward. But don't think that we want you to trim the moustaches. We liked those. And a more pronounced moustache presence is at the top of our *Call of Duty 5* wish list.

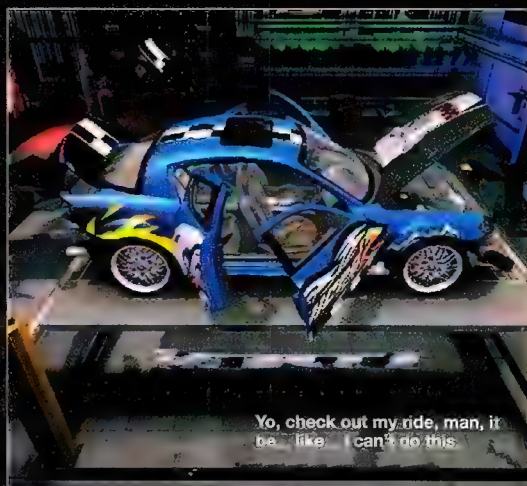
Annoyance factor: 9

RICE

AS
SEEN
IN

Grand Theft Auto: San Andreas, Juiced series, Midnight Club series, Need for Speed series

You think the *Fast & The Furious* movies would've been enough for those people. You know, those people who pour a ridiculous amount of cash into decorating their vehicles with lights, shiny bits and fancy paintjobs. We can't



understand people like that. It's not like geeks would ever do anything like that. No. We have much more in the way of commonsense.

For a while there, ricing was it and a bit when it came to games. *Need for Speed* fans gobbled it up like fat kids faced with a night locked in a corn chip factory. Even the *Grand Theft Auto* franchise hopped onboard the rice wagon with *San Andreas*.

All that focus on ricing that followed in the wake of the *Furious* flicks upset us for a while, but then we realised we hadn't given a goat's arse about *Need for Speed* games for years. Still, thank God that the ability to rice up your virtual Skyline has become so passe that it's no longer what public relations drones hit us with when they're trying to explain why their game is going to be worth your hard-earned dosh.

Annoyance factor: 7

OBNOXIOUS MARKETING

AS
SEEN
IN

Anarchy Online (free version), Battlefield 2142, Burnout 3, Everquest 2, Judge Dredd: Dredd vs. Death, Madden 2008, Need for Speed series, Planetside, Rainbow Six: Vegas, Second Life, Splinter Cell: Chaos Theory, SWAT 4, Test Drive Unlimited, Tiger Woods 2008, Transformers

Okay, it's not so much a trend as something that's ongoing. But either way, for a while we thought – naively, it seems – that games would let us escape from the non-stop bombardment of commercials we're forced to endure pretty much everywhere else. It didn't take long for the Evil Marketing Overlords to realise that these new fandangled things called videogames were rather wildly popular. Wildly popular, no less, with an audience that clearly had a helluva lot of cash to piss away. After all, cutting-edge computer hardware, consoles and big screens are by no means cheap. Nor, for that matter, are games themselves.

In-game advertising hasn't and, realistically, won't bring down the price of games. And for that reason it pisses us off something awful. Sure, billboards for real products and businesses in racing and sports titles add an extra touch of authenticity to the experience, but beyond that, what do we, as players, have to gain from the presence of ads in our games? Stuff all, if you ask us. But it's not like we have much choice if we want to play games like *Splinter Cell* and *Rainbow Six: Vegas*.

Annoyance factor: 8



PHYSICS

AS
SEEN
IN

Half-Life 2, Jurassic Park: Trespasser, MotorStorm, Psi-Ops,
Star Wars: The Force Unleashed, Stranglehold

Baffling though it may be, physics – you know, that thing gravity, Newton's Laws of Motion and all that – has been fashionable for some time. One of those trends that's managed to stand the test of time. You know, like yo-yos.

The ugly mess that was *Trespasser*, as the two of you who actually played it no doubt know, did bring physics to games long before Source was even a twinkle in Gabe Newell's eye, but make no mistake, it was Gabe's baby – *Half-Life 2* – that deserves the credit when it comes to truly pushing things in terms of videogame physics. Why? Just approach those two people who played *Trespasser*. They'll no doubt have 'fond' memories of attempting something that's theoretically simple like, say, stacking some boxes, only to end up dislocating Minnie Driver's right arm and crushing themselves under an avalanche of crates, paint tins and lengths of four-by-two.

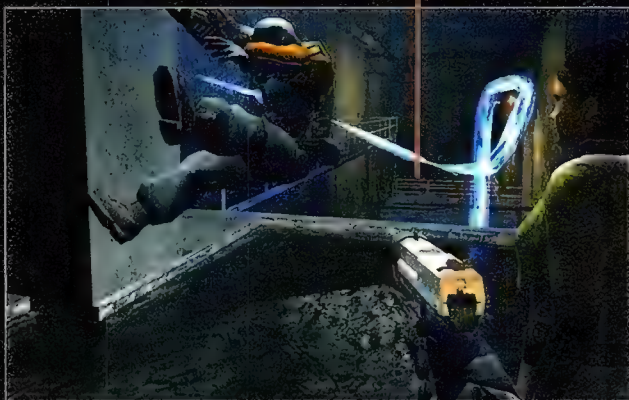
Half-Life 2 had an amazing physics engine. Valve's tireless commitment to perfecting the many varieties of the seesaw conundrum, the doorway-that-can-only-be-cleared-with-the-gravitational-power segment and toxic-pool-that-can-only-be-crossed-with-barrels-you-must-push-around puzzle in the years after the game's debut is testament to their goal of being a truly innovative and exciting developer. Or perhaps it's not. But hey, at least their games are good enough for us to excuse that.

Annoyance factor: 5

In summing up, we must reiterate what we said earlier. Just as insects don't exist in our rectal passage, games don't exist in a bubble. What's doing well in other mediums, what's going on in the world around us and the make-a-buck aspect of games development all play a role – one that, at times, is much larger than it ought to be – in the shaping of our medium.

What it all boils down to, though, for most of the 'trends' listed above, is that the market demands it. We demand games with solid writing, realistic physics and gritty urban settings. We want – or are perceived to want – racing games that let you choose from a range of fancy paint-jobs, several types of hubcap and different coloured neons.

Picking up on and running with fads, movements, staples of other mediums (i.e. quality writing) or real life (i.e. physics) is by no means something that makes for shitty games. Indeed, this piece has mentioned some of the greatest games of the past half-decade or so. These are games that wouldn't have been half of what they were had their studios ignored the flashes in the pan and cravings for interactive versions of what benchmark programs and tech demos had been doing for years. It's just that, for every *Battlefield 2* or *San Andreas* or *Call of Duty 4*, you have a *Free Running* or *Bulletproof* or soul-crushingly mundane *Need for Speed*. And damn, yo, that shit ain't right. ☹



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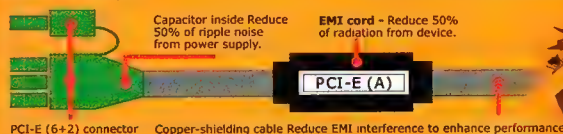


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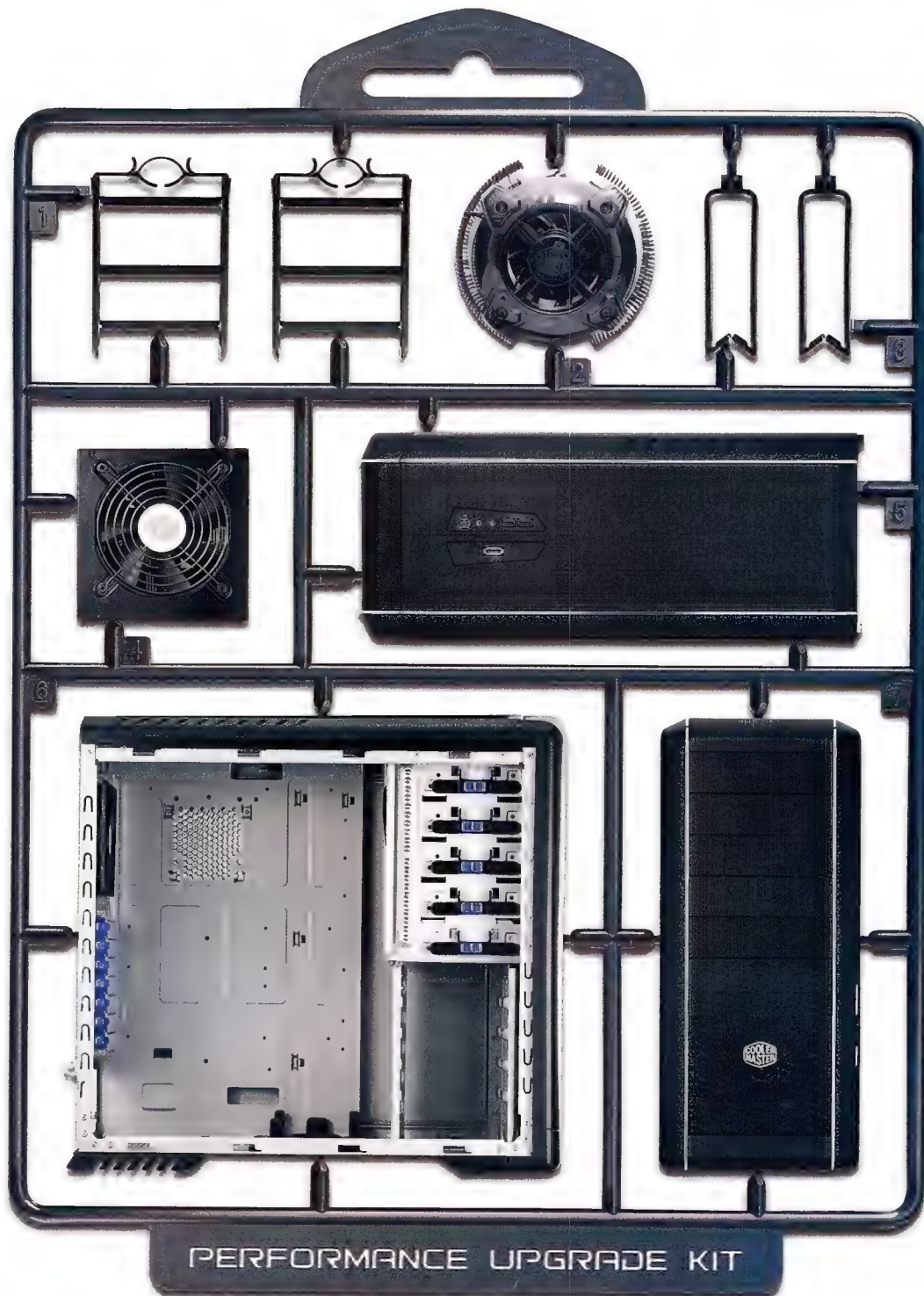
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HARDCORE

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NEWS, REVIEWS AND ROUNDUPS ON THE LATEST HARDWARE

Josh puts the HARD into HardCore this month, with a super serious rundown of the crop of new 8800GT-based graphics cards. We know we teased you about the chipset and all its glory last month, but here's the pay-off for all you salivating NVIDIA fans

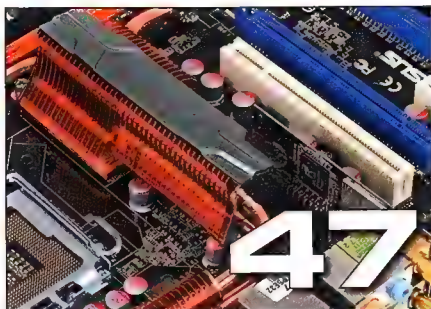
But that's not all we have for you. There are PC cases, giant heatsinks, RAM, motherboards, optical drives and even a killer laptop for the mobile

gaming types out there. And all reviewed as only Atomic knows how – naked, with hookers watching us.

Josh Collins and Dan Rutter both deliver their regular portions of techy opinion, too. Josh is royally pissed off at price gouging of what should be affordable hardware, and Dan's making his mark on his local neighbourhood. Again.



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BENCHMARK

How we test,
what we test,
when we test it

3DMark05 and 06 are the legs of our bench. As freely downloadable tools, they allow people all around the world to compete on a single platform, regardless of its indication of real world application, and its ability to keep our table stable.

On the gaming surface, Call of Duty 2 takes first honours in the FPS department. Quake 4 follows closely behind for our OpenGL benchmarks, taking over from where the venerable Doom 3 left off and offering multiple CPU optimisations. Half-Life 2 remains, its market penetration simply too huge to ignore. X3: Reunion makes an appearance, in an effort to have a benchmark that is not an FPS. In the same line, Splinter Cell: Chaos Theory has also been added. Other games do exist. Honest.

All tests are run at 1280 x 1024, 1600 x 1200 and 1920 x 1200 with vsync off, to cater for the most popular LCD resolution, CRT resolution and those who own widescreen monsters respectively.

To hit the CPU, we use LAME MT, a multithreaded version of the

popular MP3 encoder, which is used to compress a standard 30-minute WAV file. Similarly, VirtualDubMod is used to compress a standard 1GB raw video file into XviD at 1300Kb/s. Other CPU specific tests in our stable are Maxon's CineBench and SuperPi Mod. Rounding out the suite, SiSoftware's Sandra tests several subsystems across the board, while HDTach and ATTO Disk Benchmark helpfully provide hard drive scores.

All these tests are run on a Windows XP SP2 platform, running the latest official drivers available. Every test is run three times to eliminate any oddities that may crop up along the way, the final result printed in the magazine being an average of those scores.

Of course, all this is pointless without a standard set of hardware, and as such it is laid out below for the world to see. On with the testing!



The Atomic Hot Award is given only to the best. In our roundups, we differentiate the best further using the following awards:

VALUE AWARD This means the product is the best buy price-wise.

PERFORMANCE AWARD Price isn't a big factor - it just has to make our benchmarks burn and our eyes water.

EXTREME AWARD Forget everything. If it's mind-blowingly amazing, then it'll get an Extreme Award.

BENCHMARKS

Graphics

3DMark05
Game tests only, 4xAA, 8xAF
www.futuremark.com

3DMark06
Game tests only, 4xAA, 8xAF (SM2.0), 8xAF (HDR/SM3.0)
www.futuremark.com

Half-Life 2
Canals custom timedemo, 4xAA, 8xAF, all details highest, HDR off
www.half-life2.com

Splinter Cell: Chaos Theory
Lighthouse Demo, Shader Model 3.0, 8xAF, shadow resolution high, all features on
www.splintercell3.com

X3 Rolling Demo
High settings, auto quality control disabled, glow enabled, 4xAA, 8xAF
www.egosoft.com/games/x3/info_en.php

Call of Duty 2
Hill 40 - Defend custom timedemo, 4xAA, 8xAF, all options highest
www.callofduty2.com

Quake 4
High quality, 4xAA, 8xAF, Multiple CPU support, all options highest
www.quake4game.com

Subsystems

HDTach
www.simplisoftware.com

LAME MT
softlab.technion.ac.il/project/LAME/html/lame.html

VirtualDubMod
virtualdubmod.sf.net

SuperPi Mod
www.xtremesystems.com/pi

Cinebench
www.cinebench.com

SiSoft Sandra
www.sissoftware.co.uk

Everest
www.lavalys.com

Others

DisplayMate
www.displaymate.com

ATI Tool www.techpowerup.com/atitool

RivaTuner
www.guru3d.com/rivatuner

FRAPS
www.fraps.com

CPU-Z www.cpubid.com

Stress Prime 2004 Orthos
sp2004.fre3.com

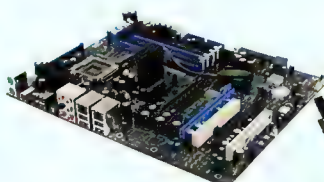
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intel



▲ Intel Core 2 Duo X6800

EVGA



▲ EVGA 680i SLI

CORSAIR



▲ 2GB Corsair Dominator PC2-10000

WD Western Digital



▲ WD 1500ADFD

ENERMAX



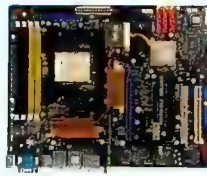
▲ Enermax Galaxy 1000W

AMD



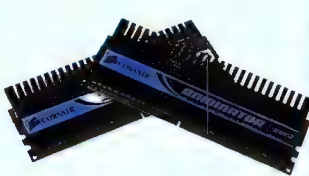
▲ AMD Athlon 64 FX-62

ASUS



▲ ASUS M2N32-SLI Deluxe

CORSAIR



▲ 2GB Corsair Dominator PC2-10000

DELL



▲ Dell 2405FPW

ASUS



▲ ASUS 8800 GTX

Big Willy is here!

Dave Field's been cackling maniacally in the labs, and the time has come to unveil his new creation...

Some time ago, while cleaning out the labs, we came across an old Shuttle box that could support SLI. The most head scratching question was how it could possibly do this with a meager 350 watt power supply.

Surely the ceiling on the PSU would stop the hardware from standing up? We asked ourselves the same question as we looked at the various 1.2 KW PSUs lying around the joint. What kind of hardware would be the downfall of the behemoth power supplies? Should civil engineers be worried about blackouts when they're installed in the PCs of Atomicans all over the country?

To find out, we've built the beefiest computer we could. We took the most fearsome and thirsty hardware we could get our hands on, then went out and got some server hardware for good measure. We'd like to introduce you to Big Willy.

It lives!

Here's the deal. An Asus L1N64 SLI engineering sample motherboard, loaded with two FX-74s (totaling four cores running at 3GHz) and 4GB of TEAM Group Xtrem RAM. An 8800 GTX and an 8800GS – sadly we couldn't get SLI working on our engineering sample board, and figured that stressing an extra physical CPU would draw more than an SLI setup anyway. One Adaptec server RAID card. And the pièce de résistance: 16 (read it – 16!) Western Digital 7200RPM 500GB hard drives in RAID 0, and eight Western Digital 10,000RPM Raptors.

On the other end would be various power supplies in an Olympics-esque challenge to prove that they could power

the beast, meet their sticker wattage and outperform each other. The power supply itself plugs into a digital watt meter we sourced from Jaycar.

In the calm before the storm, a whimsical comment from the Adaptec engineers summed up Big Willy spectacularly. It would be the fastest thing since Concorde; with a chance it would suffer a similar fate.

We couldn't agree more.

This is the really real world

It may not look like it, but this is real world testing. We're going to find out how many hard drives worth of strain, backed by the highest specked computer we could put together, power supplies can take before they buckle under the pressure.

We'll see if they can POST under the full load, then run some benchmarks to see if they crash. We're using WPrime as it completely maxes out a processor, and we're setting it up to run on three out of the four of them. That leaves a single CPU to take care of 3D Mark 06, which is running simultaneously.

If it can't post or the PSU cuts out during the benchmarks, we progressively remove Raptors until the PSU can complete the challenge. We're also monitoring the 12 and 5 volt rails under full load and with a single 10,000 RPM drive connected to see how the voltage changes when powering a downright insane system instead of a more mundane extreme system.

So there it is – keep an eye out in future issues for some serious looks at power supplies, backed up by some serious, serious testing.



Pretty impressive, isn't it? And this is only about a third of the glory that is Big Willy in all its entirety.

INTRODUCING... LABS THEATRE!

Josh: Big Willy. It represents the craziest son of a bitch e-penis you can get. The biggest of everything; the most of everything in a computer.

Dave: I like the name, but the explanation's a bit of a mouthful.

Josh: ...

Dave: Wait, what the hell did I just say?

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More top tech toys to titillate your techno-lust.



Microsoft SideWinder gaming mouse

Price \$129.95 Website www.microsoft.com.au

Microsoft's SideWinder mouse has had a serious facelift, and the result is one ruggedly handsome rodent. It sports a combination of angles and curves that might look like it would feel uncomfortable to rest your twitchy hand on for hours on end, but it's a surprisingly good fit. There are two side buttons – little round spring-loaded metal slugs – and a third, harder to get to button on the left side; they're quite useable, but are placed to avoid any unintentional button mashing.

Like many gaming mice, the SideWinder comes with a selection of weights to fine tune your mousing experience, as well as a selection of mouse feet so that you can perfectly match mouse to mouse-pad. It supports on the fly DPI switching, for maximum twitch and easy menu navigating, and can even manage in game macro recording, though that's of debatable use. Our favourite feature of the mouse is, of all things, the scroll-wheel – a heavy metal disk that oozes feedback and even a little bit of menace. It's hard to explain, but it's what's made this mouse a winner for us.

Belkin Hub-To-Go

Price \$89.95 Website www.belkin.com.au

Here's a hub for the serious neat-freaks – you know who are! – out there. It looks like the usual 4-port dealee, offering the usual levels of incredible convenience and Belkin style. But wait! Look in back of the thing and you'll find three more ports – seven USB 2.0 ports? Crazy! But wait - this sneaky little hub can split in two, like some kind of tech cell-division process, offering you a four port travel hub, while leaving four ports in the base of the original device.

And that base is actually a little container for all the tiny desk-trash that most people end up surrounded by – paper-clips, wads of blue-tac, 512MB flash drives, or even giant, Katamari-like conglomerations of all three, and more.



In Win Allure PC case

Price TBC

Website www.in-win.com.tw

Okay, we've got to be straight up honest – this is not a case for everyone. But we do think that there are those out there that will appreciate a PC case that styles more toward the elegant and understated than big and macho.

In Win pushes this as the perfect gift for that special someone, but we have to admit... that's kinda cheesy. What this case really seems destined for is an elegant take on how to make a PC not seem out of place in a living area; simply make it an artistic statement, a decoration like a bunch of flowers or an art print. With pearl tones offset by swirling flower designs, and inlaid with Swarovski crystals, this is not something to take along to LAN, but rather an elegant piece of furniture. And apparently you can actually put PC stuff in there to boot!



Corsair Flash Padlock

Price \$66 Website www.corsairmemory.com.au

Everybody has some kind of data that they need to transport from one machine to another. It might be 'private' photos, financial details, or your top secret plans for world domination. USB's great for data mobility, and many sticks offer security options – but not all options work across all platforms or OSes.

The Flash Padlock takes a hardware-based take on the dilemma, with a built-in keypad and the ability to program your own secure PIN – just like at an ATM! The key auto-locks when it is removed from whatever device you have it plugged into, so those with lazy brains need not be concerned. It's a solid little dingus, too, and comes in 1GB and 2GB flavours. Sadly, unlike an ATM, it will not give you money.





◀ Cyber Acoustics Computer Gaming Headset

Price TBC Website www.audion-mm.com

Without good sound most modern games would be nearly impossible to play – environmental cues like footsteps, or the sound of a pistol's hammer falling on an empty chamber, can mean the difference between delivering a righteous smackdown, or being righteously smacked. These Cyber Acoustic headphones from Audion might really save your (virtual) life.

These big-arse clam-shells offer everything you could want – an adjustable headband to accommodate the biggest of noggins, comfy ear cushions, noise cancelling mike on a super-flexy, kinda-sexy boom, volume and mute on the cord so you can get yelled at by your girlfriend for gaming too much and not have your mates hear, and gold plated audio jacks. And they sound good, too, full of pop and warm tones for music, and a booming bottom end for the action.

Razer Mako Speakers ▼

Price \$ Website www.audion-mm.com

It's odd that many devices gifted with the 'gaming' appellation are sleek, highly designed objects; odd, when many gamers' gaming set ups are a plank desk set on cinderblocks, covered in fast food wrappers, and with a caseless system running on a foam mat under a floorfan gaffed to the wall for maximum airflow.

Or is that just our gaming system?

Anyway, despite the fashion clash you might experience with these sexy, knob-like speakers, they sure do have it where it counts. They're the first desktop speakers to feature THX Certification, on top of THX Ground Plane and Slot Speaker technologies.

What the funky words mean is that the sound is aimed downward, turning your plank on bricks into a whole new sound stage. The results are impressive, even if it does mean some of your hard earned ends up in George Lucas' pockets. Damn that man. Damn him.



Gizmosis Infill G4 ▲

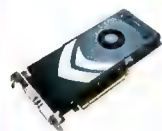
Price from \$2,995 Website www.gizmosis.com.au

In car PCs are nothing new, but what the Infill brings to the table is a rare level of polish and thoughtfulness. Running a number of proprietary apps off the back of Windows XP, this gizmo from Gizmosis is a true mobile PC, offering pretty much anything you might want to do with a computer from the comfort of the driver's seat. You could even think of it as the ultimate PC case mod!

Combined with voice recognition and speech to text, the Infill can handle MP3 and DVD playback, split screens to display a road map in the front and DVD playback in the back, or even read out emails to you while you drive – the ultimate in staying in geek touch. It'll help you reverse park with a rear facing camera, can be fitted with a WiFi dongle so that you can transfer files from your car to your desktop PC, and with a Bluetooth keyboard you can type properly – as long as you're safely parked. Atomic does recommend safe driving practices after all!

Leadtek PX 8800GT
512M Video Card

From:
*\$400



Intel CPU E6850
Core 2 Duo 1333 FSB
3.0 GHz



From:
*\$379

Samsung 22" 226BW LCD

From:
*\$487



Logitech G9 Laser Gaming
Mouse

From:
*\$112



Logitech G15 REV 2
Gaming Keyboard

From:
*\$105



Corsair TwinX 6400C4 2GB Kit
800 MHz 4-4-4-12 Timings



From:
*\$139

Western Digital 36.7 GB
Raptor, 10,000 RPM SATA2



From:
*\$155

Asus P5N32-SLI s(775)
Motherboard



From:
*\$325

www.arc.com.au

Asus G2S Notebook

Product Specifications:
Intel Core 2 Duo T7500 2.2GHz, 4MB
2GB Memory Supports 4GB DDR2 667
300GB SATA HD
DVD Burner
17.1" WXGA+ TFT 1440 x 900
Webcamera
nVidia GeForce Go8600M GT 256MB
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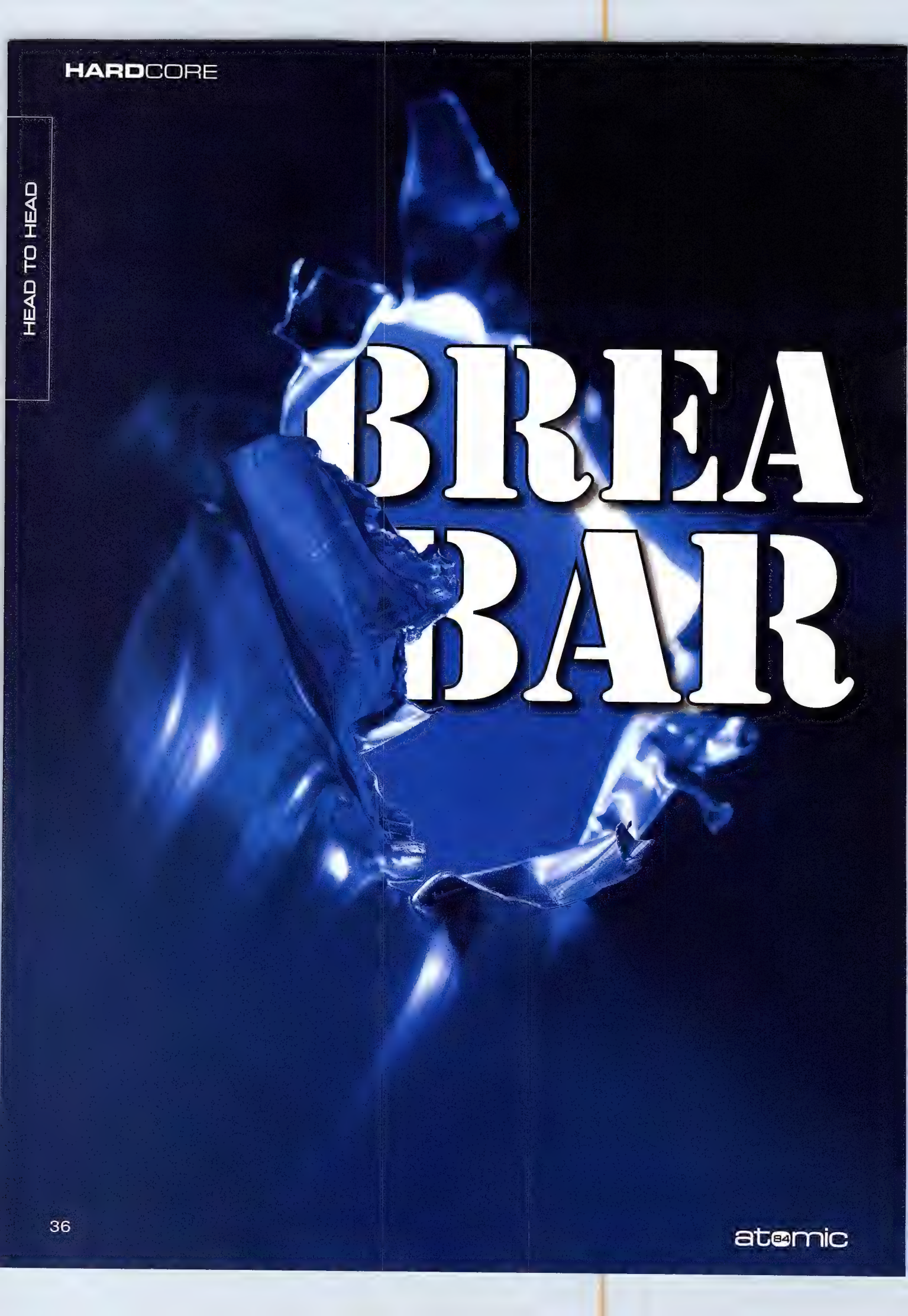
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Price from 20/11/2007

HARDCORE

HEAD TO HEAD

BREA BAR



KING RIIERS

Josh Collins puts a range of 8800 GT-based cards through their labs paces in an epic tale of benching and graphical splendor.

We're currently enjoying a golden age of computing. We've been blessed with consistent and bitterly-fought price wars over the past 18 months as the big boys in the CPU and GPU realms have been vying for cost supremacy. Thanks to these pissing matches, we've been gifted with a world jam-packed with choices and great bang-for-your-buck opportunities... And now, NVIDIA has outdone itself and delivered to us a rarity that only occurs once every three to four generations.

The 8800GT is a card that far exceeds the performance of its given price point – even after the short supply has forced prices up significantly. The last card to offer such a level of value was the legendary Ti4200 way back in the dark ages of 2002, and perhaps the 6600GT and 6800GT. But none of these greats of yesteryear comes close to the raw potency of this new contender. The 8800GT is hitting hard – ridiculously hard.

In this Head to Head we'll take a stroll through some benchmarks with the recently released 8800GT at varying stock frequency specifications. We've gone through and collected a whole host of cards from as many manufacturers as we could cajole into rushing their new toys out to us – and there are still more cards coming! The cards we tested range from the big names such as ASUS and GIGABYTE through to the slightly lesser known brands such as Zotac and Galaxy, and all in an effort to find what the best buy is for you.

We've also gone and grabbed the rest of the 8800 series family in the form of the two GTS models, both 320MB and 640MB, and the GTX model to compare with the GT newcomer. To round things out we'll take a look at some preliminary results from the RV670 core based cards from AMD ATI. We'll fully test the HD3850 and HD3870 in future issues, but for now we'll take a sneak peak at the competition in this very competitive market segment.

The ins and outs of the 8800GT and G92 core

	8800GT
Core code name	G92
Stream processors	112
Core clock	600MHz
Memory clock	900MHz
Shader clock	1500MHz
Memory	512MB GDDR3
Memory interface	256-bit
Manufacturing process	65nm
Memory Bandwidth (GB/sec)	57.6
Texture fill rate (billion/sec)	33.6
Power connector	1x 6-pin
Power consumption	110W
Length	22.86cm (9 inches)
Thermal solution	Single slot
DirectX 10 compliant	Yes
Outputs	2x Dual link DVI, 1x HDTV-out

The NVIDIA 8800GT represents a core refresh, adding to the current 8800 series of graphics cards. As many of you are aware, the GTS (both 320MB and 640MB versions), GTX and Ultra models are based on the G80 core. This core is based on a 90nm manufacturing process and has a maximum of 128 stream processors, as shown in the GTX and Ultra models.

Based on a 65nm manufacturing process, the 8800GT uses the new G92 core. This represents 112 stream processors and features 512MB of GDDR3 memory running a 256-bit memory bus, as opposed to the 320-bit bus on the GTS models and the 348-bit bus on the GTX and Ultra.

Although it features a lower bandwidth memory bus, the 512MB packed 8800GT still sports memory running at a frequency of 900MHz, with a dual data rate speed of 1800MHz. This is the same frequency as that found on the GTX model and is also commonly set to anywhere between 950MHz and 1000MHz by NVIDIA card add-in partners – that's only 40MHz shy of the stock memory frequency of the Ultra.

The core is stock specified for 600MHz; however this can be easily and effortlessly overclocked while maintaining safe temperatures. Already sporting a higher core frequency than the GTX, the GT can and does exceed the core frequencies of an Ultra and by quite a large margin thanks to just how damn easy it is to overclock. As witnessed in the roundup, add-in partners are providing cards with factory overclocks as mild as 625MHz all the way up to the crazy 750MHz stock speed of the GIGABYTE card.

With a full stack of 112 stream processors, the 8800GT walks all over both of the GTS models and combined with the potent frequencies of the core and memory, this budget beast even starts to take it to the older big boys of the 8800 series lineup.

Adding to the attractiveness of the solution offered by the 8800GT, and thanks to the move to the 65nm manufacturing process, the new G92 core runs considerably cooler. This becomes clear when doing a direct comparison of the performance

gained from the card, and then considering the heat output and size of the heatsink. We can then compare this with the results from the likes of an 8800GTX, which shows the G92-based 8800GT to be quite a cool customer, offering a strong performance-per-watt ratio.

The G92, and the 8800GT for that matter, isn't

just a very aggressively specced card for gaming purposes. It also brings to the table a large performance boost over previous generations in the area of high definition (HD) content decoding. The G80 core has an additional processor on the card's PCB; with the shrink to 65nm from 90nm, the G92 core incorporates a HD decoding processor within the die that houses the main GPU core. This effectively offloads all of the CABAC and H.264 video decoding from the CPU to be done solely on the GPU. This delivers an overall system performance boost as CPU cycles are freed up from decoding.

Another neat feature concerning HD content and the G92 core is that it allows for NVIDIA's PureVideo HD technology to provide Blu-Ray and HD-DVD play back at a super-massive resolution of 2560 x 1900.

Finally, the 8800GT also offers support for PCI Express 2.0. This allows for a doubling in bandwidth from 2.5Gbit/s as found in the PCIe 1.0 and 1.1 specifications up to a whopping 5Gbit/s. Don't worry about compatibility though, as PCIe 2.0 is backwards and forwards compatible. This means a PCIe 2.0 graphics card will function without issue running in a PCIe 1.x specification motherboard and vice versa.

WHAT THE DUCE? I THOUGHT THIS WAS AN 8800GT ROUND UP!

As you will notice, we also test the GTS 320, GTS 640 and GTX models of the 8800 line up. The reason for this was to assure that the broader picture is available to demonstrate the sheer performance this killer card has released upon a somewhat unsuspecting market.

At the resolution tested, 1280 x 1024, the 8800GT is quite simply an exceptional value video card. It effortlessly pushes both GTS models aside and even pushes past the GTX at this resolution. However, at larger resolutions, such as 1920 x 1200, the GTX holds its ground alongside the Ultra as Kings of the Hill due to the larger amount of memory able to be dedicated to loading textures and so on. Interestingly, the GTS 640MB still gets outperformed by the GT.

All in all, it was the general consensus that the inclusion of the other 8800 series cards that sit either side of the GT in the product tree allowed for a greater overall understanding of the performance offered throughout the 8800 series.

THE HD3850 AND HD3870 GUEST APPEARANCE

Although this roundup is of 8800GT graphics cards, while also detailing the comparison between the GT series and the rest of the 8800 family, we felt it was essential to include the recently released HD3850 and HD3870. These cards will be battling it out in a similar price point and market place, so it seemed a good idea to be somewhat bi-partisan in our approach.

Although initial performance, as shown in the graphs, depicts both new releases from AMD ATI to be slower than NVIDIA's 8800GT, the new releases do have some hidden weapons.

The weapons, perhaps of mass destruction, or maybe just mass distraction, include the fact that the HD3850 is roughly 60 per cent cheaper than the 8800GT and in ready supply. This, in conjunction with the plethora of CrossFire capable motherboards in the market as well as the introduction of quad CrossFire, contributes to helping make this card all the more appealing for an ongoing growing platform or for a straight up two card CrossFire configuration. Additionally, with the HD3870 only 4fps behind in Crysis and 1,000 points behind in 3DMark06, and readily available for \$340-\$350, it could very quickly become the choice of a frustrated enthusiast waiting for 8800GT stock to make its way through the starved channel.

We'll be taking a closer look at these new cards from AMD ATI in next month's issue so consider this to be a warm up lap for now.





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CREATIVE

Test system configuration

Using the usual suspects from the labs, as noted on the 'how we test' page, we set about configuring a test bed for the bounty of silicon beauties we were blessed with. Here's what we used and the settings implemented:

eVGA 680i SLI motherboard
Intel Core 2 Duo @ 400x9 = 3600MHz
Corsair Dominator PC2-10000 @ DDR2-1000 on 4:5 divider.

Memory timings:

- tCL = 4
- tRCD = 4
- tRP = 4
- tRAS = 10
- tRRD = 4
- tRC = 22
- CMD = 2T

Instead of using our usual Microsoft Windows XP Pro installation, we formatted the hard drive with a copy of Microsoft Windows Vista Ultimate 32-bit. Other software we used includes 3DMark06

for synthetic testing, and Crysis to utilise DX10 functionality for testing of 'real world' gameplay.

With using Crysis for the in-game benching, we decided it was best to test the cards under the most grueling graphical settings. Additionally, we did this while maintaining a realistic resolution that would actually be used by most real gamers. The settings we used were:

- 1280x1024 resolution
- All advanced options set to 'Very High'
- No AA
- No AF

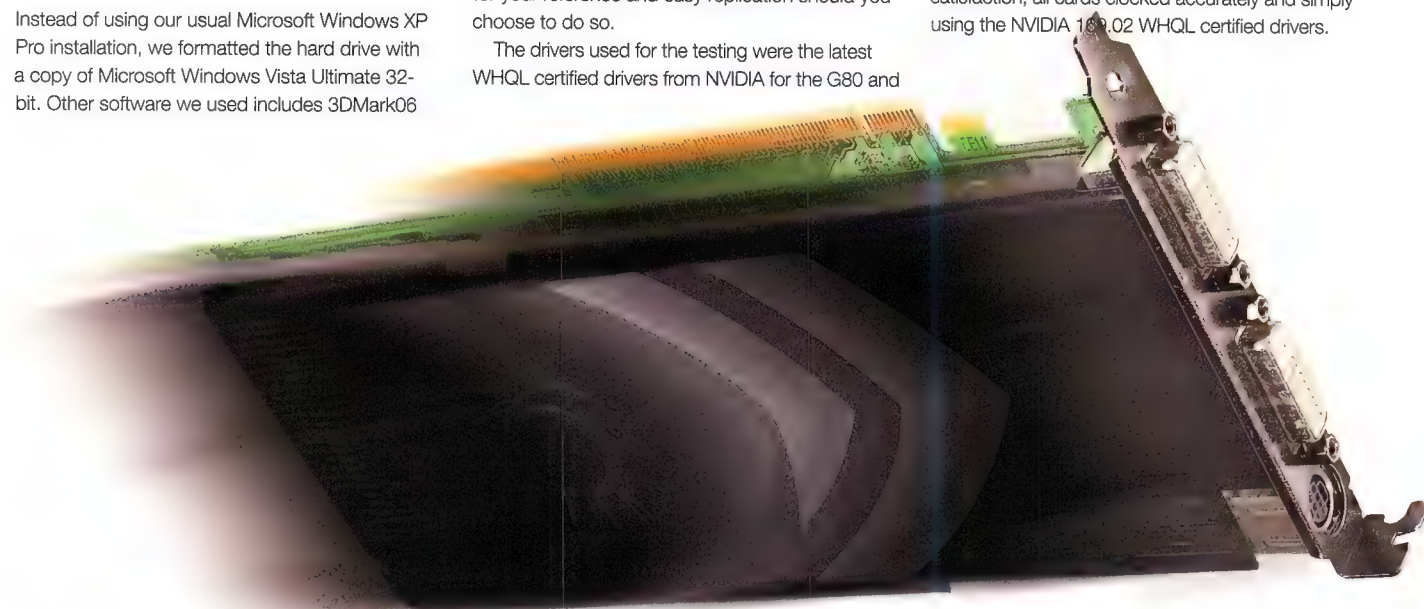
All 3DMark06 testing was done at the default settings of 1280x1024 with no AA and no AF. This was to assure a comparable 3DMark06 result with other results obtained on the ORB database and for your reference and easy replication should you choose to do so.

The drivers used for the testing were the latest WHQL certified drivers from NVIDIA for the G80 and

G92 based cards, while we used the latest Catalyst drivers for the ATI cards. Here are the specifics:

- NVIDIA 169.02 WHQL – G92 testing
- NVIDIA 163.75 WHQL – G80 testing
- ATI Catalyst 7.10 – RV670 testing

Each 8800GT graphics card was scanned using the latest version of GPU-Z to obtain the functional frequencies of the card. This provided not only an accurate reading of the frequencies on the cards' core, shader and memory frequencies but also an active reading. This means we could see what frequencies were enforced when the card is simply placed in a system. As such we were not using any propriety drivers, applications or other funny business that could bog down your tweaked systems, just the cards in all of their glory. To our satisfaction, all cards clocked accurately and simply using the NVIDIA 169.02 WHQL certified drivers.



NVIDIA 8800 series product comparison chart

	8800GTS 320MB	8800GTS 640MB	8800GT	8800GTX	8800Ultra
Core code name	G80	G80	G92	G80	G80
Stream processors	96	96	112	128	128
Core clock	500MHz	500MHz	600MHz	575MHz	612MHz
Memory clock	800MHz	800MHz	900MHz	900MHz	1080MHz
Shader clock	1200MHz	1200MHz	1500MHz	1350MHz	1500MHz
Memory	320MB GDDR3	640MB GDDR3	512MB GDDR3	768MB GDDR3	768MB GDDR3
Memory interface	320-bit	320-bit	256-bit	348-bit	348-bit
Manufacturing procesas	90nm	90nm	65nm	90nm	90nm
Memory Bandwidth (GB/sec)	64	64	57.6	86.4	103.7
Texture fill rate (billion/sec)	24	24	33.6	36.8	39.2
Power connector	1x 6-pin	1x 6-pin	1x 6-pin	2x 6-pin	2x 6-pin
Power consumption	108W	108W	110W	145W	175W
Thermal solution	Dual slot	Dual slot	Single slot	Dual slot	Dual slot

NVIDIA Reference 8800GT

Street price: **N/A** Supplier **NVIDIA** Website: **www.nvidia.com**
 Core clock: **600MHz** Memory clock: **900MHz (1800MHz effective)**
 Shader clock **1500MHz** Manufacturing Process **65nm**

This is the reference design from NVIDIA and serves as our benchmark for the 8800GT in terms of performance and specifications. The card operates with a 600MHz core, 900MHz memory and 1500MHz shader clock and is cooled by a single slot heatsink fan thermal solution.



Zotac 8800GT AMP! Edition

Street price **\$415** Supplier **Zotac** Website **www.zotac.com**
 Core clock **700MHz** Memory clock **1000MHz (2000MHz effective)**
 Shader clock **1700MHz** Manufacturing Process **65nm**

A player in the game for a long time, though generally behind the scenes, Zotac is the retail face of a larger OEM group known as the PC Partner Ltd group. This group provided a part of the manufacturing facilities used in constructing the rest of the G80-based 8800 series cards under contract from NVIDIA.

Now with a retail face, Zotac is bringing direct to the market its experience in hardware manufacturing and one such product is the Zotac 8800GT AMP! Edition.

Aggressively clocked at 700MHz on the core, 1000MHz on the memory and 1700MHz for the shader clock, the card competes in the cut throat top tier of the market, taking on the likes of ASUS and GIGABYTE. Admirably, the card takes it to the limit and scores a solid third place, though it does so at a steep price point with no bundled games or software, just the drivers and additional cables.



Inno3D 8800GT Overclock

Street price **\$382** Supplier **Altech** Website **www.altech.com.au**
 Core clock **650MHz** Memory clock **950MHz (1900MHz effective)**
 Shader clock **1690MHz** Manufacturing Process **65nm**

Inno3D has been associated with budget orientated branding for some time, but cheap doesn't have to mean nasty. Clocking in with a 650MHz core, 950MHz memory and 1690MHz, the card offers a notable overall stock overclock.

The bundle for the Inno3D 8800GT Overclock includes the usual cable peripherals and driver disc as well as a full version of Tomb Raider: Anniversary.

So far, so good – ticks in the overclock column and game bundle column, albeit not the quality of game we've seen in the other bundles. The last area to cover is the price – sitting at a comfortable \$382, the price isn't bad but like so many price arguments, the GIGABYTE offering is only \$8 more and comes with a better game (NWN2) and higher overclocks.

For what it is though, the Inno3D card is a capable product with a decent bundle and a classy looking sticker on the heatsink to signify it is an overclocked Inno3D branded card.



GIGABYTE 8800GT

Street price **\$390** Supplier **GIGABYTE** Website **www.giga-byte.com**
 Core clock **750MHz** Memory clock **900MHz (1800MHz effective)**
 Shader clock **1800MHz** Manufacturing Process **65nm**

Now this right here is an offering worth its price. Weighing in at \$390, this card sits in the middle of the price war; what makes this card stand out is the huge overclock on the core frequency – a very comfortable 750MHz. The card also features an overclocked shader clock of 1800MHz; again, the highest among the pack and substantial by any measurement. What we would have liked to see on this card, however, is at least some level of overclocking on the memory as it is unusually set to the 900MHz reference speed. For this reason, we find the ASUS 8800GT Top Edition matches the results of the GIGABYTE within a small margin, while running a slower core and shader frequency.

The GIGABYTE card comes bundled with Neverwinter Nights 2, further adding to the value.

Running such a high core frequency, we were intrigued to see whether the card still used stock vcore settings of ~1.08v as measured on the reference card. We tested this, as many reference cards top out in the vicinity of 720MHz to 760MHz when overclocked. Not surprisingly, after reading the vcore with a digital multi-meter we found the vcore to be set to 1.26v – this could create concern for the card's longevity due to heat output; that said, we witnessed no issues while testing.



ASUS 8800GT Top Edition

Street price **\$430** Supplier **ASUS** Website **www.asus.com**
 Core clock **700 MHz** Memory clock **1000MHz (2000MHz effective)**
 Shader clock **1750MHz** Manufacturing Process **65nm**

In a photo finish with the GIGABYTE offering, and with the Zotac only millimeters behind, the ASUS 8800GT Top Edition provided stellar performance at the peak of the 8800GT roundup.

This card makes up for the 50MHz core frequency deficit compared to the GIGABYTE card by offering an optimised memory frequency of 1000MHz; subsequently, it's able to perform within the top percentage of the 8800GT group. There've been reports of long-term issues running the memory over 1000MHz, but during testing we didn't find any signs of possible issues or areas where they may develop. The reports are coming within a short period, therefore any possible issues (and these are not restricted to a single brand) would be picked up by warranty, and ASUS has a 3 year warranty on all of its graphics cards.

Also bundled with the card is a copy of Company of Heroes: Opposing Fronts to ensure you're able to test out the 8800GT in DX10 gaming – as long as Vista is installed that is.



ALBATRON 8800GT

Street price **\$396** Supplier **Albatron** Website **www.albatron.com.au**
 Core clock **625MHz** Memory clock **925MHz (1850MHz effective)**
 Shader clock **1500MHz** Manufacturing Process **65nm**

Running a slightly higher set of core and memory clock frequencies, the Albatron offers a mildly overclocked option in the 8800GT family.

The Albatron 8800GT has a couple of stickers on the heatsinks to signify it is an Albatron branded card, but fails to add anything further over the Galaxy offering in terms of a larger bundle. Like the Galaxy, the Albatron provides the necessary drivers on a disc and the additional connectors you've come to expect for HDTV-out utilisation.

With only an extra 25MHz on the core and 25MHz on the memory and carrying with it a \$33 price increase over the Galaxy, we can't help but feel that the Albatron falls just short of justifying the price for its product. It's a solid card, but with many other cards within the roundup offering higher overclocked frequencies for similar prices and with bundled games, we truly struggle to justify this as a purchase.



XFX 8800GT Alpha Dog Edition

Street price **\$449** Supplier **FXF** Website **www.xfxforce.com**
 Core clock **670MHz** Memory clock **975MHz (1950MHz effective)**
 Shader clock **1700MHz** Manufacturing Process **65nm**

The most expensive of the lot and yet, sadly, not the fastest of the roundup – while still an overclocked card, and bundled with Company of Heroes, it falls short and placed in the middle of the performance pack.

You would hope that the saving grace for such a price premium would be a longer warranty period than most other manufacturers. Unfortunately, like the card's performance for the dollars spent, it doesn't quite deliver. XFX does offer a 'double lifetime transferable warranty', which means the card has a lifetime warranty for the initial owner and if sold, the purchaser of the second hand card also has a lifetime warranty supported by XFX. This is where the unfortunate part comes in – this is only available in North America; the Australian market is grouped into the Asia region and thus only gets a two year limited warranty.

So for a dollar less than \$450, you get middle of the range performance and only a two year warranty. Alas for \$60 less, there's the GIGABYTE offering with a three year warranty and top level performance.



Leadtek 8800GT Extreme

Street price **\$388** Supplier **Leadtek** Website **www.leadtek.com**
 Core clock **680MHz** Memory clock **1000MHz (2000MHz effective)**
 Shader clock **1700MHz** Manufacturing Process **65nm**

Nipping at the heels of the top dogs and sporting a custom image over the heatsink, the Leadtek 8800GT Extreme comes in very close to the top three spots, but just pulls up short while securing fourth with relative ease.

Like the GIGABYTE card, the Leadtek 8800GT Extreme is bundled with a full copy of Neverwinter Nights 2. Additionally, the card comes with a CD with copies of PowerDVD 7, Orb and Adobe Reader. Also in the package is the usual set of connections such as DVI to VGA converter, HDTV-out cables and the mandatory driver disc.

The Leadtek card offers good bang for your buck but just another \$2 will get you the GIGABYTE card with its higher core and shader frequencies.



Point of View 8800GT EXO

Street price **TBC** Supplier **Point of View** Website www.pointofview-online.com
 Core clock **650MHz** Memory clock **1000MHz (2000MHz effective)**
 Shader clock **1625MHz** Manufacturing Process **65nm**

Being a relative new comer to the Australian market, but not as new as Zotac, the Point of View card jumps into the skirmish with a mixed overclocking bag. The PoV sports a mild core overclock to just 650MHz, and a shader clock with a similarly average sized booster; the memory frequency, however, draws equal 1st for highest stock speed.

This boost in the memory frequency does allow the Point of View card to jump a clear 100 3DMark06 points ahead of its closest rival, the Inno3D, and follows this up with an ever so slender micro-fine lead again in the Crysis benchmark.

The street price of the unit was not available at the time of print; this is a pity as it could well be the turning point in the mini battle between this and the Inno3D card.

An intriguing card that shows another way in which the 8800GT can be presented.



HEAD TO HEAD

Galaxy 8800GT

Street price **\$363** Supplier **Altech** Website www.altech.com.au
 Core clock **600MHz** Memory clock **900MHz (1800MHz effective)**
 Shader clock **1500MHz** Manufacturing Process **65nm**

The Galaxy offering of the 8800GT is quite simply a stock standard reference card; heck there isn't even a brand sticker in place of the NVIDIA logo on the fan. With this noted, the card is none the less a good starting point within the range on offer from the 8800GT category.

Due to the card being, for all intents and purposes, a reference card with just a Galaxy-branded BIOS and with no bundled games, software or anything of that nature, this card is quite obviously catering towards those individuals who simply want the card and nothing else. Due to the lack of frills, you'll find the Galaxy submission for this roundup to be a pure bottom dollar answer to the call for an 8800GT.

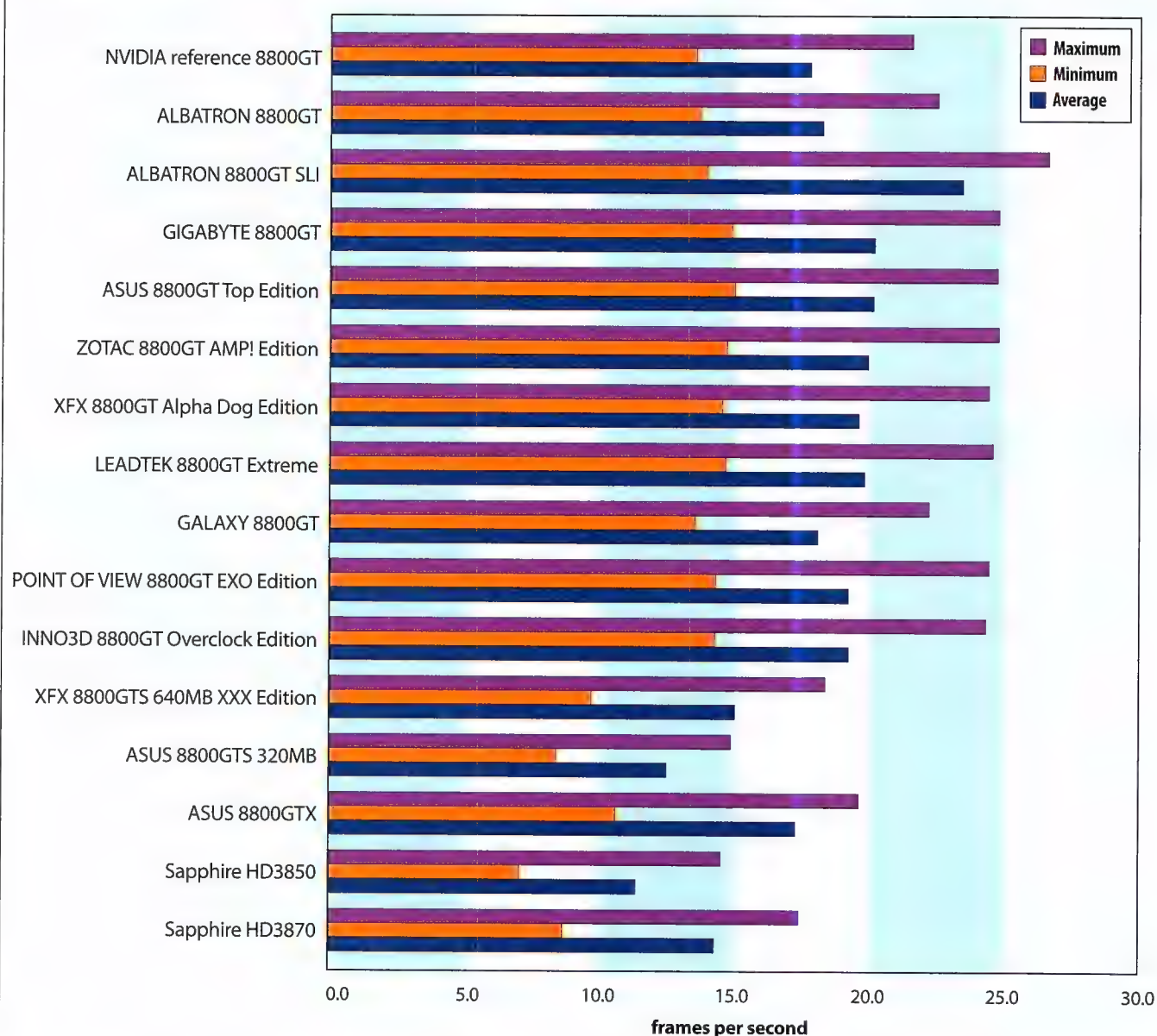


3DMark06 results

NVIDIA reference 8800GT	11,503
ALBATRON 8800GT	11,758
ALBATRON 8800GT SLI	15,348
GIGABYTE 8800GT	12,690
ASUS 8800GT Top Edition	12,720
ZOTAC 8800GT AMP! Edition	12,660
XFX 8800GT Alpha Dog Edition	12,409
LEADTEK 8800GT Extreme	12,522
GALAXY 8800GT	11,509
POINT OF VIEW 8800GT EXO Edition	12,302
INNO3D 8800GT Overclock Edition	12,203
XFx 8800GTS 640MB XXX Edition	10,666
ASUS 8800GTS 320MB	9,218
ASUS 8800GTx	11,373
Sapphire HD3850	9,544
Sapphire HD3870	10,698

3D Marks

Crysis, 1280x1024



“At the test's end we now have a clearer perception and understanding of what to expect from these budget monsters.”

Conclusion

As has been demonstrated in this roundup and, frankly, was expected purely after having read the 8800GT specification sheet for the first time back in Santa Clara, we knew we were in for a treat from this bang-for-your-buck beauty.

The cards are sleek and stylish, presenting a powerful gaming option to those pressed for space within their case. The G92 core is an absolute monster of a core, and has allowed for optimisations in core frequency head room, waste heat output and overall form factor. The G92 represents not only a refresh of the G80 core technology but an evolution that is causing the previous generation to desperately hang on for dear life to stay in their own game!

Having rounded up, pitched head to head, and reviewed a large number of 8800GT cards, we now have a clearer perception and understanding of what to expect from these budget monsters.

Furthermore, the inclusion of results from the rest of the 8800 series family and first look results of the new arrivals from AMD ATI should allow for informed and decisive choices being made when it comes down to letting go of that hard earned cash for some hard earned gaming fun.

For every roundup there has to be a winner. This time around, the winner comes from the GIGABYTE corner. Providing a product with exceptional performance, strong price with consideration of the value obtained and bundled with a decent game, the product as a whole simply creates a well rounded purchase. Also to be commended is the close second and third placing cards from ASUS and Zotac respectively. All three show great performance, with GIGABYTE just edging out the competition and then wrapping it up with a solid bundle and price point. 🏆

NVIDIA 8800GTS 512 MB



Based on the G92 core, this card represents the second phase of the 8800 series refresh. Sporting an extra 16 stream processors and higher stock frequencies and the 65nm manufacturing process, we'll no doubt also find these cards overclocked by add-in card partners. These cards

are surely going to set yet another value benchmark, as well as offering gamers extreme performance. As with the 3-way SLI coverage, we'll get into the knitty-gritty of it all as the product hits the retail market, but for now, here's some of the stuff you've all no doubt been clawing about for, almost literally straight from the horse's mouth!

8800GTS 512MB

Core code name	G92
Stream processors	128
Core clock	650MHz
Memory clock	970MHz
Shader clock	1625MHz
Memory	512MB GDDR3
Memory interface	256-bit
Manufacturing process	65nm
Memory Bandwidth (GB/sec)	62.1
Texture fill rate (billion/sec)	41.6
Power connector	1x 6-pin
Power consumption	~130 (TBC)
Connection type	PCIe 2.0
Thermal solution	Dual slot

HOLD THE PRESSES!

AD TO HEAD

THREE-WAY SLI

Roll up, roll up. Come one, come all. Here is the greatest graphical freak show known to humanity. The one, the only – three-way SLI.

Introducing a new level of lunacy to the enthusiast market, NVIDIA is pushing the boundaries with an interpretation that can only be properly expressed in pure Geekese:

'All your expansion slots are belong to us'.

The beast that is three-way SLI is visually appealing to any silicon lover. Think back to the first time you saw two graphics cards running in an SLI configuration, be it a set of Voodoo2 cards from 3Dfx or two GeForce 6-series cards much later; the appeal of multiples runs through many facets of life. Multiple graphics cards, be it NVIDIA SLI or AMD ATI CrossFire, will continue to appeal to enthusiasts.

Getting down to the meat and cheese of it all, we tested the platform on our usual labs gear using the same setup detailed for the 8800GT round up. The exception however is the drivers. The drivers used were a tweaked 169.09 beta and an additional 3-way SLI patch which will eventually be incorporated into the release

driver by the time you read this. We'd like to take this chance to note that when three x16 slots are populated on a 680i chipset-based board that the slots revert to being three x8 slots. This combined with the need for some serious CPU power resulted in some large bottle necks in the system. Even our Core 2 Duo at 3.6GHz was not enough to feed this beast! However we believe an overclocked Yorkfield based Core 2 Quad at around 4GHz, which is a considerably easy overclock for these chips, could relieve this issue when combined with NVIDIA's next generation of SLI chipsets – we'll get to that next month. For now, you can blame the NDAs! But rest assured we'll be bringing it to you as soon as we can.

We benchmarked the system to find the bottle necks, paired with the early beta drivers, delivered only an average gain from adding the third card. As such, we'd like to reserve the right to present actual benchmark scores when we have the proper retail release hardware and drivers, as well as the upcoming new NVIDIA SLI chipsets paired with one of Intel's Yorkfield



based Core 2 Quads.

For now, a massive shout out to Atomic readers! The technology is almost here and the technology actually works! Stay tuned and we'll hit you all up with the benchmarks and technology analysis as soon as possible.

Cheers big ears

We'd like to take this opportunity to thank NVIDIA for making the necessary information and current as well as beta technology available to us. Without the understanding and support of NVIDIA, both the crews in Australia/APAC and Santa Clara, we would not be able to bring to the Atomic readership the breaking news of the

8800GTS 512MB and the news and preliminary benchmarking of three-way SLI.

Thanks also go out to NVIDIA in conjunction with Zotac for making three 8800GTX 630MHz core graphics cards available for three-way testing.

This understanding and consideration assures the Atomic readers are first in the loop and always on the bleeding edge of technology!

Beta is as beta does

Also note that due to the nature of the pre-release testing done in the Atomic Labs, the drivers we used were extremely early beta versions and as such, results should be taken as a preliminary look into a technology that we will undoubtedly be looked at much more in the future.



SwordM

VD5000 Series

Witness the Legacy



The Thermaltake SwordM full-tower PC case is a true reflection of the contrast between technological advances and the artistic quality of superior craftsmanship.

This Limited Edition, handmade, all-aluminium, extrusion-built case is available in two models; one with and one without in-built liquid cooling. The VD5001BNA features an advanced liquid cooling system for the highest performance and the most silent operation.

The SwordM also features hydraulic mechanisms on the top and side panels for easy installation as well as a tool-free design.

The case includes provision for up to 12 x 5.25" drive bays with detachable HDD cage.

The specially designed 7" drive bay expands to support a retractable touch-screen LCD monitor for dual screen operation (optional).

The styling of the SwordM is derived from the streamlined curves found on the swords of ancient Chinese warriors. This superior styling is only made possible through the utilisation of handcrafting. Own a piece of history by taking a SwordM home today!



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**QUALITY
PERFORMANCE
RELIABILITY**



ASUS P5E3 Deluxe



SPECS

Price \$445
Supplier ASUS
Website www.asus.com
Specifications Socket 775; Intel X38 northbridge; ICH9R southbridge; ATX form factor; solid state capacitors; 802.11n onboard wireless; 3 x PCIe 2.0 x16; 2 x PCI; 1 x PCIe; 1 x EIDE; 6 x SATA; 1600MHz FSB; DDR3-1333.

The P5E3 Deluxe represents the next step in the development of solid high-end motherboards. Starting with the P5B Deluxe during the P965 era, and moving onto the P5K Deluxe and P5K3 Deluxe for the P35 chipset, further evolution has led to the introduction of the P5E3 Deluxe sporting an X38 chipset.

Initial belief was that this board would simply be an incremental addition to the range, more or less mimicking the P5K3 Deluxe but this time with PCIe 2.0 support from the X38 chipset. Thankfully and much to our pleasure, this motherboard is much more than an incremental increase in a product tree with barely any changes – quite the opposite actually.

At a BIOS level this board is dramatically different to any other we've seen in this price and performance bracket. For starters, the options available and level of detail in which the settings can be tweaked, both in terms of value steps (i.e. 0.025v increments rather than 0.05v increments) and the level of voltage adjustments available with high max voltages etc. This unfortunately wasn't extended to the CPU vcore, which is still seemingly chopped it off at the knees with only 1.7v as the max BIOS settable value and leaving the high vcore gig to the R.O.G. line of boards.

Most intriguing within the BIOS mechanisms, however, was the way in which values were entered, removed and generally modified. Instead of the traditional method of pressing enter to then be presented with a number of options, this time

around you simply key in the value on the num pad. It takes some getting used to at first as you re-train your BIOS micro-I33t abilities to be a num pad warrior, but in the end it leaves you with an ultimately more intuitive BIOS. This could perhaps be seen as an initial hurdle for new comers to the overclocking scene who aren't quite clued in, but we can't see that being a serious issue for long.

Layout wise, however, there are some poor choices. One example is the small spacing between the PCIe 2.0 slots. This is a big issue problem due to the amount of heat generated by today's cards, which are commonly thrown into a CrossFire configuration. Also of concern is how close the DIMM slot clips are to the back end of the PCB when using a long graphics card, such as the NVIDIA GeForce 8800 series and HD2900XT, HD3850 and HD3870 from AMD ATI.

A heatpipe jungle is present, though this is not an intrusive or obstructive issue and maintains a

clear socket area for third party heatsinks.

Also sticking out of the board is the built in 300Mbps IEEE 802.11n wireless LAN, with backwards compatibility to IEEE 802.11g and 802.11b. There are six SATA ports, four of which are on a 90 degree angle to the board, a single EIDE connection and a plethora of USB ports both on the I/O panel and headers on the board itself; this motherboard presents a high level of connectivity and features.

With the presence of DDR3 DIMM slots and an X38 chipset, we once again reached for the Corsair Dominator DDR3-1800 7-7-20 memory kit (reviewed on page 50) to review this board. These once again performed admirably during the overclocking testing.

The P5E3 Deluxe shows itself not only as a feature rich motherboard but also as one hell of a strong overclocker, partly due to the powerful BIOS options but also thanks to the strong feature set. Breaking through with a 585MHz FSB, the board comfortably matched the Maximus Extreme, and then some. We were pleasantly surprised, to say the least.

We found the P5E3 Deluxe to be a strong overclock, particularly in the realm of memory overclocking, regularly capable of sustaining slightly higher frequencies at the same latencies and volts, or tighter timings at the same frequencies, be this a whole CAS level change or simply running 1T rather than 2T command rate timing.

The board offers comparable overclocking to the Maximus Extreme and a strong feature set to boot. This is definitely one for the pool room.

JC

	333x9; DDR3-1333 5-5-5-15 1T	500x6; DDR3-1333 5-5-5-15 1T	500x6; DDR3-1600 6-6-6-18 1T	550x6; DDR3-1650 6-6-6-18 1T	450x7; DDR3-1800 7-7-7-20 1T
Super Pi 4M	1m 29.125s	1m 28.156s	1m 27.407s	1m 20.406s	1m 23.953s
wPrime 32M	29.812s	29.937s	29.890s	27.234s	28.422s
3DMark06 CPU score	2743	2748	2750	3017	2936
CineBench – single thread	3090	3093	3098	3397	3240
CineBench – multi-thread	5932	5917	5924	6564	6244
Everest Read	9438MB/s	10317MB/s	11129MB/s	11637MB/s	11477MB/s
Everest Write	6078MB/s	7954MB/s	7961MB/s	8754MB/s	8076MB/s
Everest Latency	51.2ns	75.1ns	70.1ns	69.3ns	58.0ns

SCORE

9.0

OUT OF 10

ASUS Maximus Extreme

SPECS

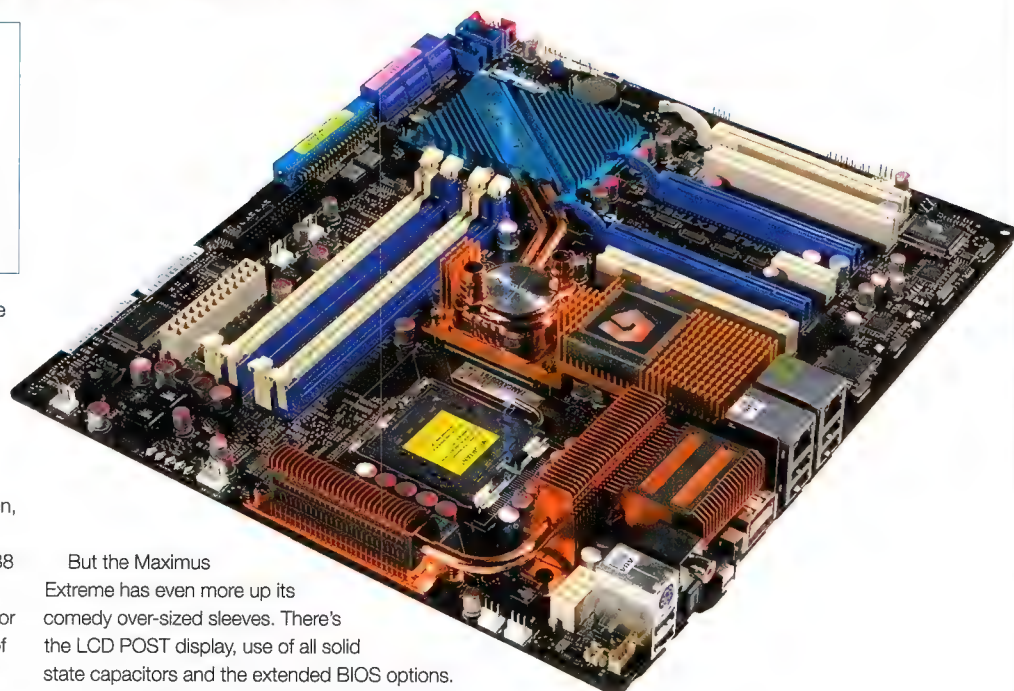
Price \$538
 Supplier ASUS
 Website www.asus.com
 Specifications Socket 775;
 Intel X38 northbridge; ICH9R
 southbridge; EATX form factor;
 CrossLinux technology; Fusion
 block; SupremeFX II; 3 x PCIe 2.0
 x16; 2 x PCI; 1 x PCIe x1; 1 x EIDE;
 6 x SATA; 1600MHz FSB; DDR3-
 1333.

As big as an elephant in size, and with a price tag to match, this board is packed to the brim with features. Extreme indeed!

Continuing the heritage started with the Blitz motherboards from the R.O.G. series, the Extreme version represents the DDR3 revision. This time around, the Extreme has been given some further features in comparison to its brethren, the Formula. The standard feature of this is the inclusion of a CrossLinux chip. Even though the X38 chipset supports two PCIe 2.0 slots rated at x16 speed, the addition of the CrossLinux chip allows for a third PCIe 2.0 slot, also running the maximum of x16 speed.

Next on the list of differences is the size. Thanks to the inclusion of the CrossLinux chip, among other things, the Extreme has broken outside of the traditional desktop motherboard form ATX factor, now conforming to the larger EATX form. Interestingly, even with the increase in available space, the board doesn't seem all that spacious, but nor does it resemble a tiny Datsun 120Y. Although on a larger platform, the Extreme resembles the layout of the smaller Formula version. This means that spacing between areas such as the backend of a large GPU and the clips on the memory DIMM slots is much the same.

Also included on the board is the Fusion northbridge cooling solution originally introduced in the Blitz range. The block design and the barb connections have been further refined, and with the upsizing kit included in the peripherals the inclusion of the northbridge to a water cooling loop is a rather hassle free experience.



But the Maximus Extreme has even more up its comedy over-sized sleeves. There's the LCD POST display, use of all solid state capacitors and the extended BIOS options. These are all features we've come to expect from the R.O.G. series of motherboards and are happy to see continue to appear.

Neatly bundled with the board is a rather strong assortment of software. The software included is a full copy of S.T.A.L.K.E.R., a full copy of and license for 3DMark06, as well as a copy of Kaspersky anti-virus. This strong bundle assures you've got something to entertain yourself, a 3DMark06 score to brag about to your mates and ease of mind knowing Kaspersky has the Russian mafia going after any potential viruses, all from the get go.

Another thing we've come to expect from this series of motherboards is strong overclocking potential and sleek performance held.

We put the Maximus Extreme through its paces paired with an 8800GTX, Intel Core 2 Duo and 2GB of Corsair's recently released Dominator DDR3-1800 7-7-7-20 memory (see page 50 for

the review).

The performance from the motherboard was very strong and picked up the slack left behind by the Maximus Formula, further showing the increase in performance while using DDR3 on an X38 chipset. With the memory running at some impressive figures – DDR3-1333 5-5-5-15 1T and DDR3-1600 6-6-6-18 1T – the board was free to shine. The Extreme pulled down some impressive scores, maintaining performance as it scaled as well as maxing out at a 585MHz FSB.

There aren't many faults in this board but one that was a glaring pain in the rear admiral was the inability for it to restart and boot correctly when overclocked. The error appears to occur around 500MHz FSB with Conroe and Kentsfield CPUs and even earlier, at roughly 400MHz, for the Yorkfield-based QX9650. When set to overclocked settings such as 550MHz FSB and a 6x multiplier, the system would happily boot and benchmark, but if simply restarting the machine the system would hang prior to POST. This then required a CMOS clear and loading of the BIOS settings from a saved profile to once again boot into Windows.

As an overclocker and gamer oriented product, the BIOS issue as serious a problem and was tested with all currently available BIOS, we can only hope this gets fixed in the near future. This, paired with the steep asking price, did diminish our impression slightly but we still walked away from the Extreme with a smile on our faces. **JC**

	333x9; DDR3-1333 5-5-5-15 1T	500x6; DDR3-1333 5-5-5-15 1T	500x6; DDR3-1600 6-6-6-18 1T	500x6; DDR3-2000 7-7-7-20 2T	500x6; DDR3-2000 8-8-8-20 1T	550x6; DDR3- 1320 5-5-5-15 2T	550x6; DDR3-1760 7-6-6-20 1T
Super Pi 4M	1m 29.625s	1m 28.766s	1m 28.187s	1m 28.047s	N/A	1m 21.203s	1m 19.985s
wPrime 32M	28.906s	28.905s	28.875s	28.828s	N/A	27.125s	27.172s
3DMark06 CPU score	2719	2721	2723	N/A	N/A	2943	3072
CineBench -single thread	3084	3086	3082	3077	3083	3309	3319
CineBench -multi-thread	5935	5917	5852	5885	5898	6130	6239
Everest Read	9414MB/s	10464MB/s	11114MB/s	N/A	11138MB/s	10,528MB/s	11579MB/s
Everest Write	6058MB/s	7941MB/s	7948MB/s	N/A	7969MB/s	8762MB/s	8764MB/s
Everest Latency	56.5ns	81.6ns	77.6ns	N/A	81.8ns	83.4ns	76.6ns

Memory = fuxx0red after 500FSB. Command rate = useless and high frequency becomes terrible

SCORE

8.5

OUT OF 10



XFX'S FIRST GRAPHICALLY INTENSE MOTHERBOARDS

What do you get when you combine a 7 Series GeForce® GPU with an XFX nForce® 6 Series Motherboard? Easy. A motherboard that delivers an amazing Windows® Vista™ experience and outstanding graphics. To learn more about our creations, visit us at www.XFXforce.com

nForce® 630i/GeForce® 7150 - nForce® 630i/GeForce® 7100 - nForce® 610i/GeForce® 7050



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Corsair Dominator TWIN3X2048-1800C7DF



SPECS

Price \$765
Supplier Corsair
Website www.corsair.com
Specifications 2 x 1GB kit; PC3-14400; DDR3-1800; 7-7-7-20; 2.0v, 240-pin DIMM; Non-ECC Unbuffered DDR3; Micron ICs; Lifetime warranty.1333.

The Corsair Dominator series has been a strong leader in the performance memory sector since its launch on the DDR2 platform. It was just a matter of time before this series reared its head on the DDR3 platform.

To open up the DDR3 Dominator account, Corsair has released a kit rated at a blistering DDR3-1800 frequency (PC3-14400 bandwidth) with aggressive timings of 7-7-7-20 on a 2T command rate basis. These modules come in two options: one features the newly released standard from Intel, Extreme Memory Profiles, and the other does not.

The timing for the release of the Corsair Dominator DDR3 range couldn't have been any better. With the release of the X38 chipset in recent months and the subsequent flow of motherboards based on this chipset, we've also seen an influx of DDR3 capable motherboards. To have a kit of Corsair's recently release finest arrive with two DDR3 capable motherboards from ASUS; it seemed like nothing less than a match made in heaven.

Having tested some Micron based DDR3 in the labs in past issues; we were initially surprised by the aggressive timings for these modules at stock. Added to the kits' frequency of DDR3-1800, it certainly isn't anything to shy away from either. Paired with the alpha latencies of 7-7-7-20 we all knew we were in for a treat.

When considering such high frequency and aggressively timed modules, you know you're getting the cream of the crop and the Dominator DDR3-1800 C7 kit is just that. Selectively chosen and cherry-picked from the masses for extreme



performance, what really starts to play on the mind is the question as to what these modules are truly capable of. Yes we know that even out of the box these little beauties are already running pretty smoothly, but what can they really do. Well we found out, and boy did it leave us with one grand smile on our faces!

Firstly it was a matter seeing what these modules could do with tight latencies. Setting the sticks to 7-7-7-20 and, feeling like a torturer from some B-grade horror movie, we thought we'd have a laugh and watch the modules fail under a 1T command rate... boy were we wrong. The little buggers managed to hold together, not only that but up to a strong showing of DDR3-1333!

Pushing on with further absurdity, we managed to hit DDR3-1650 with 6-6-6-18 latencies while still maintaining a 1T command rate. By our good green God, what can't these things do? Playing further we continued on with DDR3-1760 7-6-6-20 1T and rounded it out with a slight shaky DDR3-2000 7-7-7-20 1T. We feel that with further voltage manipulation and sub-timing tweaking, DDR3-2000 at CAS7 1T just may be achievable on a super-stable platform. We can only gasp for air as our plans to test-to-fail have back fired, with these modules kicking the living daylight out of us instead.

Showing they're a tweaker's playground and

running quite happily at DDR3-1800 7-7-7-20 also on a 1T command rate, we can't help but feel these modules are under specced; further confirming they're uncompromisingly binned for high performance.

Add to this stellar performance a tidy package including a dedicated cooler in the form of the Dominator Airflow Fan and a lifetime warranty, the asking price of such powerful and even, shock horror, future-proofed memory makes the asking street price quite bearable. Still in the realm of the hardcore enthusiast but we'll no doubt see this filter into the more affordable sector as DDR3 prices continue to fall. **JC**

SCORE
9.5
OUT OF 10

	333x9; DDR3-1333 5-5-5-15 1T	500x6; DDR3-1333 5-5-5-15 1T	500x6; DDR3-1600 6-6-6-18 1T	550x6; DDR3-1650 6-6-6-18 1T	550x6; DDR3-1760 7-6-6-20 1T	500x6; DDR3-2000 7-7-7-20 2T	500x6; DDR3-2000 8-8-8-20 1T	450x7; DDR3-1800 7-7-7-20 1T
Super Pi 4M	1m 29.125s	1m 28.156s	1m 27.407s	1m 20.406s	1m 19.985s	1m 28.047s	N/A	1m 23.953s
wPrime 32M	29.812s	29.937s	29.890s	27.234s	27.172s	28.828s	N/A	28.422s
3DMark06 CPU score	2743	2748	2750	3017	3072	N/A	N/A	2936
CineBench - single thread	3090	3093	3098	3397	3319	3077	3083	3240
CineBench - multi-thread	5932	5917	5924	6564	6239	5885	5898	6244
Everest Read	9438MB/s	10317MB/s	11129MB/s	11637MB/s	11579MB/s	N/A	11138MB/s	11477MB/s
Everest Write	6078MB/s	7954MB/s	7961MB/s	8754MB/s	8764MB/s	N/A	7969MB/s	8076MB/s
Everest Latency	51.2ns	75.1ns	70.1ns	69.3ns	76.6ns	N/A	81.8ns	58.0ns

Cooler Master CM690

SPECS

Price \$100
Supplier Australia IT
Website www.australiat.com.au
Specifications (W) 213 X (H) 482 x (D) 524.5 mm; 9.8 kg Net; SECC, Bezel, Metal Mesh+ABS; ATX, Micro-ATX compatible; 5x 5.25in, 5x 3.5in bays; 2x 120mm case fans (1x rear, 1x side); black with silver trim

If this case were to accidentally slip into a gap in the space time continuum and end up in front of a crowd of ancient Byzantines, they'd probably deify it. It would end up being surrounded with baskets of fruit and covered in sacrificial blood as they sought from it a source of all inspiration and insight into the deeper workings of our universe.

On your desk however, this towering obelisk is mean, eat-your-face-off nasty. A solid matte black, silver lined frame encases a black mesh grill that wraps over the lid as well. The generous use of mesh assists in cooling by creating a greater ease of airflow throughout the case. In an insignificant departure from stereotype, the USB, Firewire, headphone and microphone jacks, as well as an eSATA port, are located on the lid. This move can't help but be seen as a purely aesthetic, blatant disregard for functionality. Looks good, though!

The sidepanels allow for both removing by hand and tool fastening. The CM690 has two 120mm fans preinstalled, located on the rear (exhaust)

and left panel (intake). The option for two more fans to be retrofitted is available on the right panel (cleverly placed behind the processor) and on the base, underneath the power supply. Five 5.25in bays sit above an identical number of 3.5in HDD bays in the standard front-of-case positioning. The latter sports tool-less installation trays which, despite initially feeling flimsy, should provide a reasonable amount of vibration reduction. Running in a strip down the side of the 5.25in bays are all the screws needed for fitting drives, an ingenious addition which removes the possibility of ending up paddling ankle deep in screws – none of which fit. Two rubber sockets on the rear panel, round off the case with water cooling options.

The case is structurally solid; it should come away from any time travel with no adverse results. The mesh may not hold up so well against table corners, though, as the material is known to be prone to dinging. Two monstrous rubber feet should keep the thing stable even on a greased-up waterslide, and also provide additional vibration absorption.

A great looking case, backed up by a clever design, prove this is a timeless choice for any PC builder. **JM**



SCORE

8.0

OUT OF 10

AOC 198FW

SPECS

Price \$325
Supplier Compucon
Website www.compucon.com.au
Specifications 19in; 1440 x 900; 5ms; 700:1 contrast ratio; composite; component; DVI; S-Video; tilt adjustment.

Form over function? The aeons old debate can never be resolved. People always have and always will fight to the death over the fact that their Alienware was worth the 10 grand just 'cause of how damn cool it looks. Sometimes though, it's hard to know where to draw the line. In this case, it's obvious.

AOC's newest offering is a novel feat for the company, as it showcases a more design-conscious screen than their previous black on black models. The monitor's price, features and specifications dump it squarely in the mid-range, general-use category. It won't be appreciated by gaming enthusiasts or movie buffs, but instead will appeal to more casual users.

Sporting a 19in screen at a 1440 x 900 resolution, the screen itself is of commendable quality. Blacks were deep and colours were bright and vivid. The screen includes a built in microphone and, in combination with the monitor's

speakers, it seeks to presents a viable option for internet voice calls. Unfortunately the vibrating sheets which pass off as speakers are painful to hear even the error ding through, and watching a movie was unbearable. Exterior speakers are essential if you intend on doing anything more than web browsing.

For what this monitor has in looks (which is a matter of opinion) its actual design and ease of use is, frankly, abysmal. The inputs themselves are decent (component, DVI, composite and S-Video as well as two USB ports), but the entire array of inputs are unreachable without removal of a clumsy back panel, an entirely unnecessary evil. To rub a metric ton of salt into the wounds the inputs are recessed into the rear leaving barely enough space for the DVI cable. This not only means that the screws are nigh impossible to tighten but it also left a nasty notch in our cable. Impractical, unintelligent design. Granted there are two more easily accessible USB ports on the side, but even these are squirreled away. Finally, there is no height adjustment, but rather a sliding leg that provides limited tilt. That said, horizontal viewing angles are great; you could fit a small crowd around the screen with no complaints.

A structurally solid build and an 'ambient light



sensor' (we couldn't see the difference) can't save what is essentially a flawed screen. Buy Dell's equivalent and save yourself 60 odd bucks. **JM**

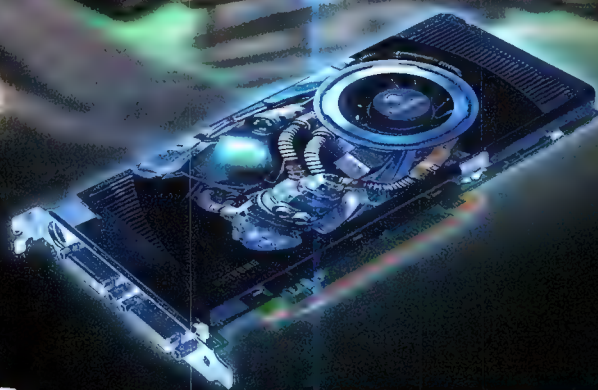
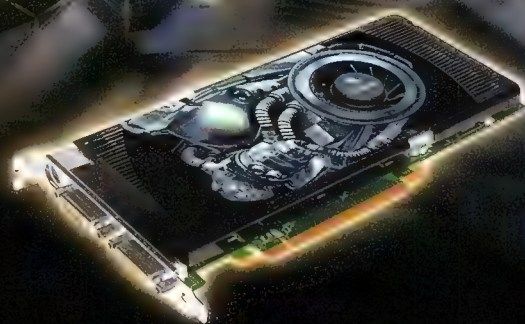
SCORE

5.0

OUT OF 10

Conquer Your Fussy Sense

Fight



WinFast PX8800 GT



- NVIDIA® GeForce® 8800 GT
- GPU/ Memory Clock: 600/ 1800 MHz
- Memory: 512MB 256bit GDDR3
- Support DirectX® 10 Shader Model 4.0
- Support Dual Dual-Link DVI-I and HDTV

WinFast PX8800 GT Extreme



- NVIDIA® GeForce® 8800 GT
- GPU/ Memory Clock: 680/ 2000 MHz
- Memory: 512MB 256bit GDDR3
- Support DirectX® 10 Shader Model 4.0
- Support Dual Dual-Link DVI-I and HDTV

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www.leadtek.com



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www.mmt.com.au
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Way Computer (42) Ltd.
www.way.com.au
Tel: +64-9-622-0099

Thermalright IFX-14

SPECS

Price \$90
Supplier PC Case Gear
Website www.pccasegear.com
Specifications Aluminium base and fins; no fans included; 4 x 8mm heatpipes; 112 fins

Let's set one thing straight from the get go – this thing can bring the pain.

After getting over our initial thoughts of "WTF; this absolutely belongs on the end of a wizard's staff", followed by the expected morbid thoughts of knocking people about with this +3 staff head piece, we eventually got to the testing.

Strapping the unsuspecting victim to Chernobyl, our mighty steed of heat production, we forged onwards with testing.

The IFX-14 is packaged with no fans, but does come with fan mounting clips. Because of this, we thought it best to test both passive and active cooling solutions. With the need for a fan for the active cooling tests, we grabbed a Nexus off our labs' shelves, ready to be strapped to this behemoth heatsink.

With Chernobyl putting out the standard 80 watts of heat, we got into the testing, with some impressive results.

The IFX-14 managed a result of 48°C, which is pretty decent for a passively cooled heatsink.

Next we attached the Nexus fan to get some active cooling results. Again, fastened to

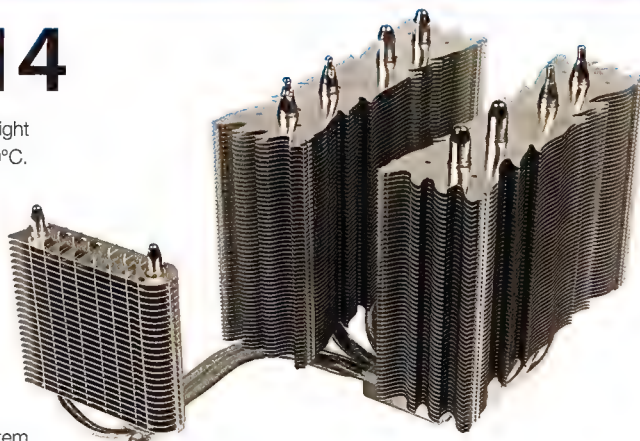
Chernobyl, the Thermalright IFX-14 scored a solid 40°C.

To round things out, we decided to do some testing that was directly reflective of the current CPU market for enthusiasts. As such, we placed an Intel quad core processor in our standard test bench system and attached the Thermalright IFX-14 – back plate heatsink and all.

Running a 333MHz FSB and using a multiplier of nine, the processor was running an end frequency of 3GHz. Using two instances of Orthos (two instances of two threads, four threads total) and with each instance of Orthos assigned to two of the four cores to assure complete load, we then used CoreTemp and a K-Type probe to read the results.

Somewhat surprisingly, CoreTemp returned results of 78°C on Core0 and 79°C on Core1 (first die), followed by a whopping 95°C on Core2 and 96°C on Core3 (second die). Generally we'd be quite alarmed by these results, yet all the while the K-Type probe read 44°C.

We remounted multiple times, however the results returned were either the same or within the



boundaries expected for retesting. Needless to say, the system got quite wobbly when we set the processor to 333MHz FSB with a multiplier of ten.

All in all, this is a solid heatsink; however as the industry continues to squash more cores on a single processor, the TDP is also increasing.

The Thermalright IFX-14 is good for single and dual cores, but if you're looking for high performance and some overclocked quad core action; you'd be better served by investing in water cooling at the very least. **JC**

SCORE **7.0** **OUT OF 10**

Coolink Silentator

SPECS

Price \$59 (LGA 775 version)
Supplier Nintek
Website www.nintek.com.au
Specifications LGA775, AM2 or K8 (each sold separately), 120mm Coolink SWiF 1202 120mm fan, PCI fan controller

At first glance the Silentator sounds eerily like a genetically modified half potato/half killing machine. But all your fears can be put to rest as the Silentator is merely the first heatsink in Coolink's product range.

For those people that enjoy getting hot and sweaty over heatpipes, the Coolink Silentator looks almost identical to the Noctua U12. The Silentator can be considered the cheaper Taiwanese brother of the Austrian Noctua, since they both share the same parent company.

Included in the box are the usual shiny bits of metal and screws for installation on LGA775, AM2 or K8 platforms. It's a shame that Coolink chose not to bundle the Silentator with all the brackets for every platform, especially to ease the financial pain for those serial platform switchers.

What's worse, the once straight-forward process of installing a heatsink is getting infinitesimally more complicated, with the LGA775

version of the Silentator we're testing requiring fastening brackets to be screwed onto the copper base of the heatsink. The brackets are then screwed again onto metal bars on either side of the CPU bracket.

The Silentator comes pre-installed with a Coolink SWiF 1202 120mm 1600RPM (max) fan and is attached to the heatsink with ubiquitous fan clips. With the whisper quiet specs of the fan, this heatsink will really appeal to the quiet computing crowd. Strangely though, the fan had to be removed in order to install the heatsink, which unfortunately negated Coolink's kind, but simple gesture of pre-installing the fan for us in the first place.

Keeping in mind the silent aspect of this heatsink, stellar thermal performance under load was not to be expected. Using an E6700 at 3GHz (10x300MHz) idle temps sat at a temperature of 56°C while load temps hit 73°C on Low speed, with very similar results on High. The ambient temperature in the Labs, which were in the high 20s, were partly to blame for these higher than normal results, however. One day we'll rule the weather, but not today.

All in all, if you're the type that enjoys playing in the solitude of silence, rather than being the



overzealous overclocker lusting for the next megahertz milestone despite the sound pollution, then the Coolink Silentator is the heatsink for you.

SCORE **7.5** **OUT OF 10**

**IF A FRIEND TELLS YOU LIFE SUCKS
TELL THEM WHERE TO GO**



Dell XPS M1730

SPECS

Price \$5749 (with comfy carry bag)
Supplier Dell

Website www.dell.com.au

Specifications Intel Core2 Extreme X7900, 17.0in UltraSharp WUXGA display, 4GB (2x2GB) 667MHz DDR2 SDRAM, 2 x 200GB SATA 7200RPM drives, Blu-ray Combi Drive, Dual NVIDIA GeForce 8700M GTs, Logitech GamePanel, AGEIA PhysX Mobile Technology

Dell may not be the first choice amongst serious computer enthusiasts, but there's one thing that even the most hardened of PC builders must recognise – the Dell engineers sure know a thing or two about good industrial design. The desktop PC cases that Dell's been delivering for years have always had the utmost build quality, and that same quality is apparent from the get-go with Dell's latest performance laptop, the XPS M1730.

There's nary a hard edge on the M1730's shell, which makes it a real breeze to slip in and out of carry bags. A kind of faux-carbon polymer effect is employed on the dark grey exterior, with two clear plastic insets serving as highlights – squint and the carbon look seems almost Giger-esque, which we think is kinda cool.

Also high on the cool stakes is the BIOS-configurable lighting rig inside the machine. With a few key-taps you can set the lighting colour that streams from either of the front speakers – we think a demonic red is the way to go, but all of the ten colours are pretty neat.

“All but the most next gen games will run fine on this beast – so is this just over kill?”

You can also configure the brightness of the backlit, full-size keyboard from the BIOS, but the real humdinger of Dell's proprietary blue bad-boy is the incredibly simple overclocking screen. If performance is all, then you can easily ramp up clock speed from 2.8GHz to well over three; yes, you do get an increased heat burden, and system performance can get a little choppy, but it's a useful feature nonetheless, and a far cry from the old days when overclocking was considered to be merely a string of dirty four letter words by



most big name vendors.

However, all the good looks and bright lights in the world don't matter a damn if your expensive gaming-on-the-go machine can't hack it where it counts. The M1730 we tooled around with was specced with an Intel Core2 Extreme X7900, clocking in at 2.8GHz (notwithstanding any post-purchase overclocking you might dabble in) and backed up by a healthy 4GB of DDR2 SDRAM running at 667MHz. The final piece of the performance puzzle is the kicker – the M1730 sports dual NVIDIA 8700M GT chips running in SLI as a factory standard, alongside an AGEIA PhysX processor.

It's an awful lot of big numbers and names for a laptop to throw around, and that's reflected in our review machine's hefty price tag, but, sadly, not in 3DMark 06. We were barely able to coax the M1730 above 8500 3DMarks; a result we feel is a little poor considering the machine's raw specs. And don't even think of trying to get a score like this without the machine plugged in – you'll either fall prey to CPU throttling and suffer massive performance loss, or drain the battery in the blink of an eye.

In the near future Dell will be placing the feted 8800 GT into the XPS range, and we're certainly looking forward to a significant boost.

All that aside however, actual in-game performance was surprisingly strong. This is a laptop designed for mobile gaming, not mobile testing, and the M1730 was more than capable of running *Crysis*, though admittedly only on Medium settings, and could even handle *U73* with maxed out settings with a minimum of stutter. Considering that the kind of person who would seriously look

at a laptop as a good gaming investment is likely to be a serious LAN gamer, even a pro gamer, performance is somewhat of a moot point anyway – this laptop will easily handle any Source-based game, and let's face it, *Counter-strike* is still king of the tourney-gaming hill. All but the most next-gen of games will run just fine on this beast, which begs the question, is this just a case of expensive overkill? Maybe, but it's pretty stylish overkill.

Our fully featured review model also came complete with a Blu-ray combi drive and built in 3G coverage, a handy option if you find yourself out of actual wireless range. Access ports are all thoughtfully arranged, especially the three USB ports, which are placed on the left, right and rear edges – a nice touch for a machine that will inevitably be hooked up to a mouse and possibly other gaming peripherals. We also awarded top points for a super solid fascia – no matter how much pressure we put on the rear of the bright LCD, we couldn't get any distortion of its picture.

And Dell manages all this without creating a ten kilo monster. The M1730 weighs in at less than 5KG, which still isn't an ideal laptop weight, but that's not how this mobile gaming platform rolls. In what might be an *Atomic* first, this is one Dell machine we would welcome into our gaming lounge with open arms. The only lingering question is if the substantial cost outlay is justified – we'll leave that question up to your hip pocket. **DH**

SCORE

7.5
OUT OF 10

DELL XPS M1730

ASUS DRW-2014L1T

SPECS

Price **\$75.60**
 Supplier **ASUS**
 Website **www.asus.com**
 Specifications **8x DVD+/- R DL, 20x DVD+/-R, 8x DVD-RW, 14x DVD-RAM, 48x CD-R, 32x CD-RW**

ASUS has just come to market with a 20x DVD writer. The ASUS DRW-2014L1T is actually a LiteOn LH-20A1H series drive rebranded, however, and the controller is based upon the MediaTek chipset. The drive follows the LiteOn LH-20A1H as one of the few 20x writers currently on the market, offering full 4.38GB write speeds of around five minutes. The 2014L1T boasts a considerable array of advanced features, including LightScribe, 14x, DVD-RAM II and 8x dual layer writing. We suggest that the 14x DVD-RAM functionality may never actually work, though, as 14x DVD-RAM II specific media is extremely hard to obtain...

We wanted to understand how the 2014L1T performed with different media types, so we selected a wide range of high quality and low quality MIDs from our media pen. We were eager to see the reality of 20x writing; we tested MCC03RG20, MCC004, PRODISCR04, MKM001 and CMCAMAGAM3 MIDs using DVDInfoPro and ImgBurn as our choice of WOPC, parity and jitter analysis mechanisms. We were extremely impressed with the drive in general WOPC. Figure 1 shows the WOPC curve for MCC03RG20 16x -R media.

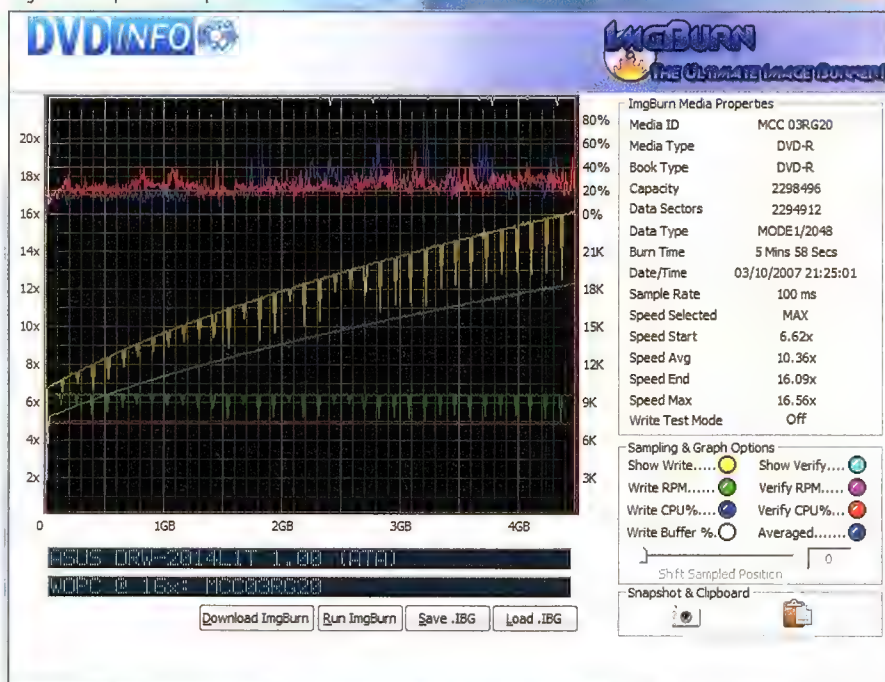
Ultimately, we needed to exercise the 20x functionality of the drive. MCC004 16x +R



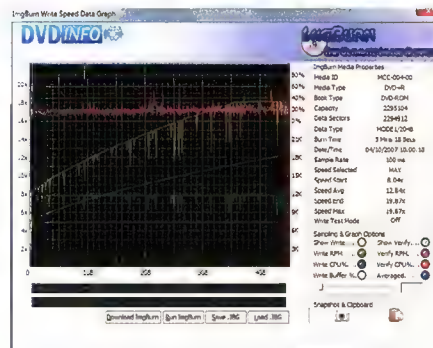
media came to the rescue, allowing imgburn to overspeed to 20x.

This is an admirable write at 4x above the rated speed of the media, with parity and jitter within specification. Our concerns came from a high parity response on the second layer of the dual layer MKM001 8x write. We'd suggest that MediaTek does not have dual layer 8x overspeeding as well-optimised as possibly could be. We also managed to write a full LightScribe disc in 22 minutes on 'normal' contrast mode resulting in a very acceptable label.

ImgBurn Write Speed Data Graph



WOPC @ 16x, MCC03RG20



WOPC @ 20x, MCC004



Parity and jitter data @ 20x, MCC004

Overall, we're happy to recommend the drive, but we'd suggest looking at the non-OEM LiteOn LH-20A1H unit, which is cheaper, has more frequent firmware updates and seems to perform slightly better to dual layer media. **Jake Carol**

SCORE **7.0** **OUT OF 10**

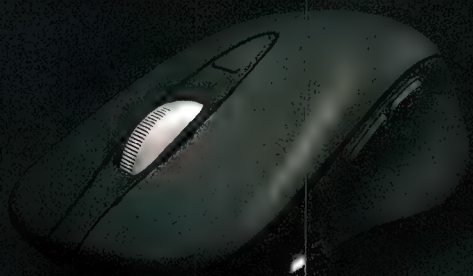
WINNING IS EVERYTHING



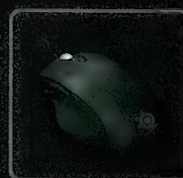
steelseries SIBERIA NECKBAND



- Developed for gaming and music
- Retractable microphone
- Full-size neckband design
- Xbox 360 compatible



steelseries IKARI LASER MOUSE



- 40.000 SPS for unbeatable tracking
- 1,8 mm lift distance
- Driverless plug-and-play
- Fully adjustable 1-3200 CPI



steelseries 5H V2



- Soundscape engineered for gaming
- Specifically optimized for FPS games
- Pull-out microphone system
- Can be dismantled into 3 pieces

Pro
GAMING



steelseries
professional gaming gear

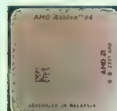
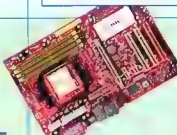
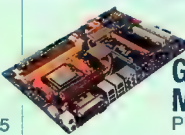
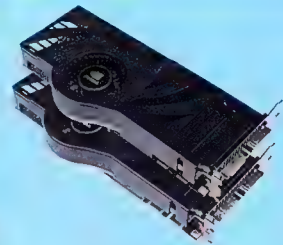
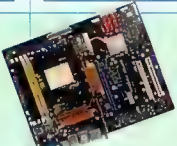
SteelSeries is a leading manufacturer of peripherals for gaming and electronic sports (eSports); including headsets, keyboards, mice, mouse pads and mouse accessories. SteelSeries has been on the forefront of professional gaming gear since its inception in 2001, thanks to continued innovation and product development in cooperation with leading professional gamers.

Available at JB Hi-Fi www.jbhifi.com.au - Clive Anthony's www.cliveanthonys.com.au - Harvey Norman www.harveynorman.com.au Distributed by ProGamer Australia www.progamer.com.au

There's nothing sexier than new kit. And whether you need to horde your pennies (Budget), want the most power for your dollar (Performance) or own a small mansion and

a collection of sports cars (Extreme), we're here to help with this handy matrix of Atomic recommended products. You may find your needs fall between categories – that's okay,

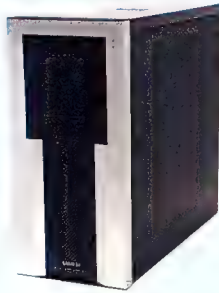
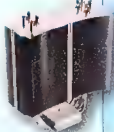
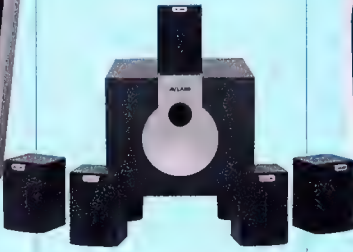
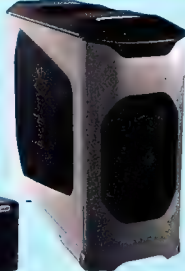
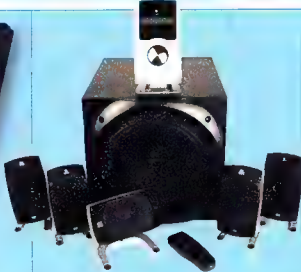
just mix and match to suit your budget! Each piece of kit has been reviewed hands-on in Atomic, so if you want to learn more, look up the issue and page number listed.

		CPU's	Motherboards	Memory	Video cards
BUDGET I can't afford to eat... gimme gear!	intel	 Intel Core 2 Duo PRICE \$100-\$480 Stretch a little further and buy yourself a Core 2 Duo – you'll be thanking yourself later. The E4400 is the cheap ticket to speed, at \$165. Reviewed in Issue 81 – Page 52	 GIGABYTE GA-G33M-DS2R PRICE: \$165 Using the G33 northbridge and has overclocking performance like its full ATX brethren, this Micro-ATX offering is extraordinarily hard to pass up. Reviewed in Issue 81 – Page 52	 Corsair Twin2X 1024MB 6400 Pro PRICE \$198 Corsair has a history of providing nice, stable and feisty sticks of random access memory joy. These RAM sticks are EPP compliant, have low latency and are nicely overclockable. 800MHz of fun for everyone! Reviewed in Issue 69 – Page 51	 Powercolor X1950 Pro PRICE \$245 The X1950 Pro is nothing short of fantastic. Mind you, this could just as easily be the 7950GT, so watch this space in case the NVIDIA card drops in price. Reviewed in Issue 71 – Page 47
	AMD	 AMD Athlon 64 AM2 X2 PRICE \$135-\$335 Cheap CPUs are a wonderful thing, and the X2s are now wonderfully cheap. The 3600+ is your budget baby at about \$85. Reviewed in Issue 68 – Page 33	 MSI K9N Neo F PRICE \$113 Excellent performance from a budget board, with plenty of legacy slots for upgraders. Don't expect to overclock though. Reviewed in Issue 68 – Page 33		
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THECHIPPERY

Silicon wars and
opinion from the
electron trenches.

Getting priced out of the game

Josh Collins laments the poor state of his wallet

The computer industry is an interesting place, a place displaying phenomena that can leave individuals baffled, surprised, angered and many other states of mind and being besides. These phenomena can be predicted through the observation and questioning of patterns and history within the industry and market place. Will an event repeat itself? When could this new generation appear? Why would this incident happen? What has it affected? Inevitably, perhaps, there are so many influences involved that many either give up on even trying to track and predict events, or go seemingly insane attempting to do so.

But what the hell does this have to do with The Chipperry and more importantly, you? Well we, as enthusiasts, are generally the ones left to go insane as we are bombarded with the current plethora of hardware, while being ever mindful of the upcoming new releases. Whether these new releases come out in a month or six months' time, it none the less weighs upon the enthusiast psyche.

This whole situation effectively turns into a proverbial skid mark when things get a little too heavy; and what is the heaviest burden that any real computing true believer has to carry? Price; and what a kicker it is.

Many enthusiasts are currently spitting chips after the long cold wait for the fabled release of the 8800GT. A card not only destined to upset the GPU market but which has effectively gone on to utterly screw it in such an unsavoury way that you could not distinguish the situation from the dropping of soap in a prison shower.

While providing amazing performance, it appears now that this was merely bang for the initial buck. Supply of the cards has done everything but flowed, demand has skyrocketed to the heavens, and all the while the area affectionately known as 'the channel' has gouged the market for more dollars. Many online forums, not only national but also international, have heard the desperate plea of the bleeding-wallet enthusiast.

NVIDIA cited the card to be initially released at a price point of \$249-\$259 USD (roughly \$290-\$320 AUD after import taxes etc). Due to the already

described situation however, cards were initially released around the \$330-\$340 range and now we're seeing the cards come to market here in Australia at a standard range of \$360 to as much as \$450 for some models – this was even happening while our high flying Aussie dollar should have been seeing these prices drop even further. Robbed!

Because this is not just a slight price rise but a monumental leap north of

the acceptable price bracket, it's left many enthusiasts stranded. Is it best to just bite the bullet now and grab the card that was planned for the upgrade four months ago? Or perhaps, would it be best to just wait until the prices come down again? Will supply catch up with demand? Following these questions many are left with one solution – buy an ATI RV670-based graphics card. Although not quite as fast as the 8800GT, they still offer strong performance, are cheaper and – shock horror – they're actually available!

This isn't the only pricing related situation gone stupid within the computer hardware industry. While dollars-spent and value-obtained ratios consistently fall in preference of the value scale in areas such as hard disk drives, memory, LCD monitors, optical drives and to a certain

extent CPUs, all of these savings on the dollars spent are made redundant by the ever growing cost of core components such as motherboards. Back in the day, as they say, a premium high-end motherboard was in the vicinity of \$300-\$350. Nowadays, we're looking at motherboards coming to market with asking prices floating from \$500 to \$600 on initial release.

On behalf of the enthusiast community – gamers, overclockers, coders, modders and everything in between – we ask the industry to have mercy on our ever aching hip pockets! ☹️

Josh gives all this hard-earned money to charities and the homeless. True story.

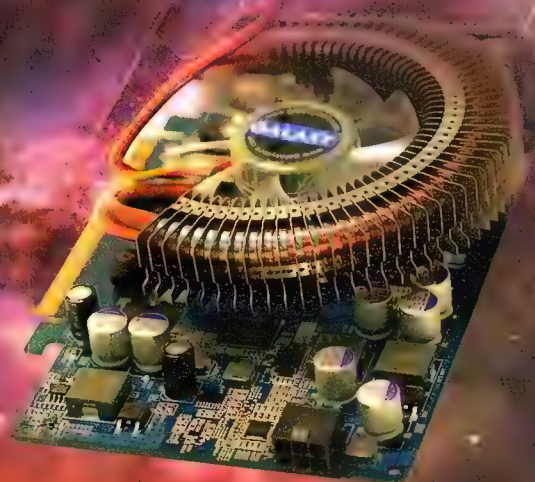
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“While providing amazing performance, it appears now that this was merely bang for the initial buck.”

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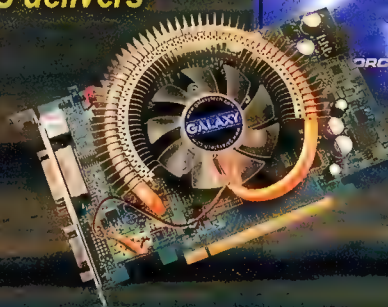


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TOMORROW'S TECHNOLOGIES - TODAY

GROUNDZERO

Dan talks tech
like you've never
heard before

WiFi pirate radio

Dan Rutter sees choppy seas ahead, hearties!

When technology becomes cheap enough to be effectively disposable, interesting things happen.

Lithium batteries, rare earth magnets and high-intensity LEDs are all pretty young technologies. But all of them are also now cheap enough that people with a few spare bucks can combine all three into cheerful little rainbow-coloured magnetic fireflies – 'LED throwies'.

Throwies still cost more than 50 cents each, even when you buy your batteries, LEDs and magnets in bulk. But a couple of hundred of 'em can go a long way.

The other day, I was considering what it'd take to make a solar throwie. The price could be only a couple of bucks if you've got a source of broken solar cells – you can solder leads onto quite small cell fragments, and a small piece of cell per throwie would be enough, especially if you included a flasher circuit to keep the draw down.

But then it occurred to me that autonomous, solar powered, close-to-free WiFi repeaters would be much cooler.

At the moment the closest you can get to this are the mesh networking gadgets from a company called Meraki.

Each Meraki box has an antenna, a DC input jack and an Ethernet port. Basically, they work as a mesh relay, access point and network adapter, depending on what's connected to them physically and via radio. And Meraki has even announced a solar power kit for its waterproof Outdoor model.

Unfortunately, the Outdoor costs \$US99 by itself (the non-waterproof 'Mini' is \$US49), and the price of the solar kit hasn't been announced yet.

But if you've got a lot of spare money, a ladder and no respect for private property, you could already be stealthily deploying Meraki gadgets all over your neighbourhood.

I think trees and roofs would be my favourite. Tempting though it is, mesh network relays strapped to telegraph poles probably wouldn't last very long.

These sorts of graffiti-artist escapades are not, of course, very attractive to anybody who can afford to buy dozens of \$200 solar gadgets. But once the hardware's own price falls to a few dollars per unit, and the power needed for a

mesh relay drops to well under a watt, we'll be in business.

All this may sound like a bit of a tall order, but remember that the OLPC XO-1 laptop-for-kids has mesh networking hardware built in. The whole XO-1 laptop has a power budget of about two watts.

The XO-1's wireless networking is based on a couple of Marvell chips that have full TCP/IP networking functions built in. So the network chips can

work as a super-lightweight mesh relay all by themselves, with the rest of the laptop powered down.

The XO-1 maximises battery life by restricting network speed to two megabits per second, but that's A-OK for ordinary web browsing. And I wouldn't be surprised if the network hardware could be kept working 24/7 by a few solar cells harvested from old LED garden lights.

Sneaking around in the middle of the night, picking garden lights like flowers, is another activity I do not recommend. You could actually get this whole deal rolling without breaking any laws at all.

There's nothing at all illegal, in Australia, about WiFi-ifying your whole suburb, as long as you get permission from all of the people on whose

property you want to deploy your hardware.

That probably won't be too difficult, if you explain to them that they'll be getting a free (if slow and unsecured) Internet connection out of the deal.

If you want to sell Internet access, then you'll need to shell out big bucks for a carrier license.

But if you give it away for free, and don't exceed the quite lenient output power restrictions, you'll be golden.

I look forward to buying a Dick Smith kit containing those two Marvell chips, an antenna and a battery.

And, perhaps, a magnet. 

“If you've got a lot of spare money, a ladder, and no respect for private property...”

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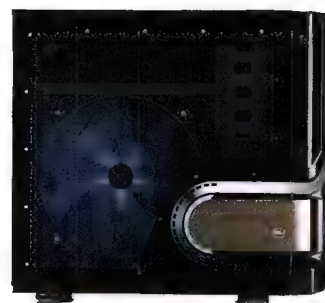
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GAMEPLAY

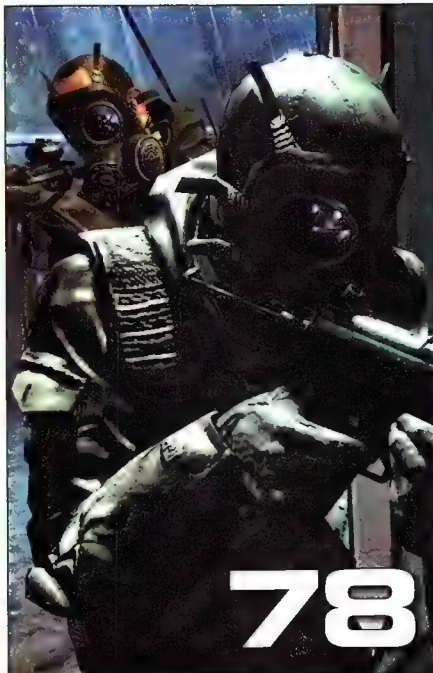
GAMES, GAMING AND GAMERS COVERED ATOMIC-STYLE

It's another whopping huge month for games, and we've been playing them until our fingers bleed to bring you the best... and some entertaining failures.

It's a tough to call say which one of this month's game we've been looking forward to the most. Crysis, Call of Duty 4 and Unreal Tournament are top contenders, as is Kane & Lynch: Dead Men. But only two of them actually managed to live up to the hype.

We also get our RPG on with The Witcher and Hellgate: London – two very different games that both involve whacking bad things with swords, and games we have two very different reactions to.

And don't forget Alex Gambotto-Burke's excellent look at Garry's Mod – a unique Half Life 2 mod that will have you thinking very differently about sandbox games.



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Unreal Tournament III

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It's, uh, a car... thing. Actually, we have no idea what's going on here, but that's the beauty of Garry's Mod.

Garry's Mod

Alexander Gambotto-Burke catches up with the lo-fi development antics of Garry Newman. No, not Gary Numan – Garry Newman!

'Sandbox' is a term that's about as overused these days as Bindi Irwin on US TV. It's a very general description; an ambiguous acknowledgment of a vague stab at non-linear gameplay, and it's been used to describe everything from open-world RPG epics to shooters that require a bit of backtracking. The sandbox is more than a marketing device, though; it's also a design goal: games will have truly reached their zenith when they can afford the kind of unstructured play real, live, flesh-'n'-blood kids enjoy in real, live, cat-faeces-infested sandboxes. Developers strive to achieve it through excruciatingly expensive advances in graphics, AI, scripting, and physics. Garry Newman achieved it with a budget of exactly zero dollars, hold the cents.

Haven't heard of him? He's yet to have his face spread across Google Image Search, and the Escapist hasn't contacted him to write a single ponderous feature, but make no mistake: Newman and his mod-turned-standalone-title, Garry's Mod, are at the forefront of the sandbox crusade. If you know nothing about the man and his mod, I'll try to explain: it's not a game, per se, but it lets you access content from other games, and also user-created material. And then, well, you basically do whatever you want with it.

Garry's Mod gives you the tools to completely take advantage of Half-Life 2's robust physics engine, and tweak the (gorgeous) visuals with countless post-processing effects, too. Want to build a giant Rube Goldberg contraption? Go

ahead. Vaporize zombies with nuclear arms? Sure. Contort Half-Life 2's enigmatic G-man into positions his grandmother really doesn't need to see? Capito. It's all possible, and it's all accessible.

It isn't, however, the kind of game you'll see slapped on shelves, sandwiched between Tomb Raider Armageddon Redux: Special Edition, and the latest Madden outing. In fact, you won't see Garry's Mod on shelves at all; it's available for a pittance exclusively through Valve's online distribution system, Steam. And it wouldn't really work anywhere else. A game (or 'tool', really) of Garry's Mod's scope isn't an easy sell; marketing something to the casual market that's essentially about disassembling Half-Life 2 and Counter-Strike: Source, and rebuilding them in often the craziest manner imaginable is a task of epic scale.

Just an experiment...

This isn't a problem, though, because Garry's Mod's audience is substantial and well-defined. Primarily, it's the legion of players who looked Newman's way when Garry's Mod was just, as the title suggests, a Half-Life 2 mod. Its first iteration wasn't anywhere near as grandiose an affair as it is now, but the potential was obvious... Well, to everyone other than Newman, that is. "It started off as just an experiment," Newman admits. "I didn't really have any intentions to release it; I just wanted to play with the ropes in the Source engine. So, I made a gun that ropes things together and showed some guys on a forum the screenshots. They encouraged me to release it. Then I just kept adding stuff every day and releasing new versions."

Newman's one of the most famous modders around these



days, but you may be a little shocked to learn that Garry's Mod was criticised at the outset. It turned out another modder had a similarly experimental bent to Newman, and unlocked Half-Life 2's Physics Gun (or 'PhysGun'), a 'weapon' that's locked in the game's SDK, and allows players/mappers to move, freeze, and rotate anything in the gameworld. He called his creation JBMMod. The difference between JBMMod's creator and Newman, though, was that Newman wanted to do more.

"Well before Garry's Mod," he recalls, "everyone had been playing JBMMod, which only really enabled the physgun – which was coded by Valve, and is part of the SDK. They had drummed up a largish following, so any mention of another sandbox mod was forbidden. But I think they all came around in the end when they realised that JBMMod wasn't being updated anymore and I was updating every day."

Official word

Robin Walker, designer and programmer at Valve, thinks it's those updates that were the key to Garry's Mod's enduring success. In fact, he thinks it's largely responsible for Counter-Strike's inimitable following, too. "Success-wise," he says, "I don't think there's one silver bullet for why Counter-Strike has achieved the level of success it has. One thing it has done over the years, like Garry's Mod, is to ship a lot of versions, each with additions and tweaks to the gameplay. That kind of



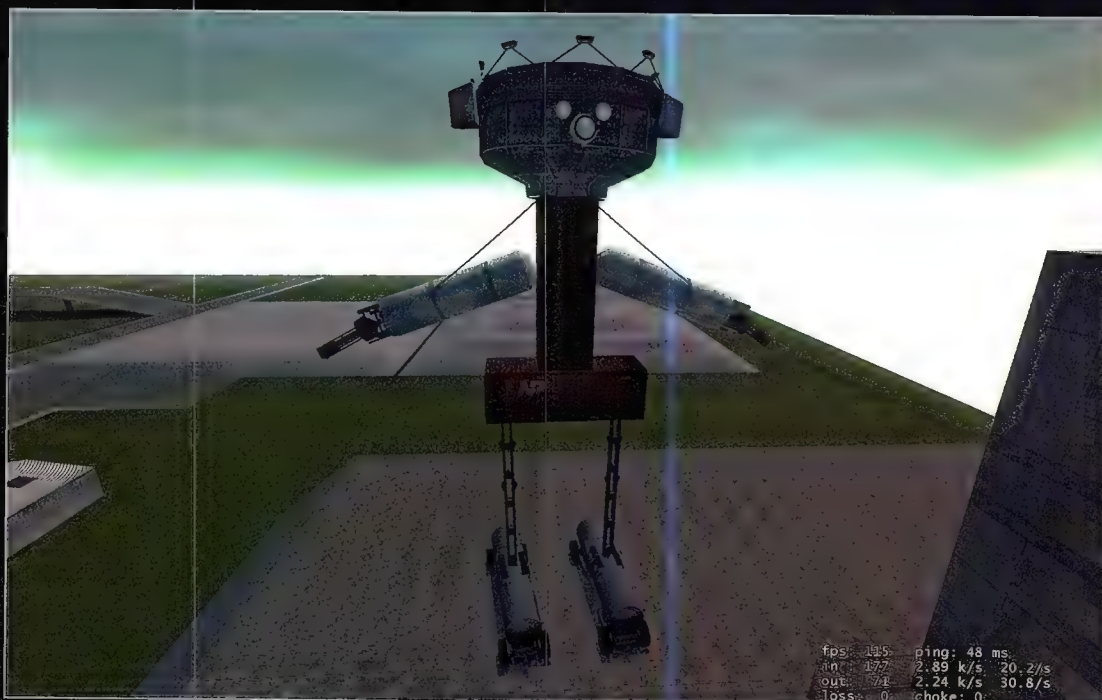
release strategy is pretty attractive to customers."

And he has the sales data to back it up. Some suggested those who'd been enjoying Garry's Mod for free in mod form wouldn't cough up for the commercial, polished version; these fears have proven unfounded. "Garry's Mod has done phenomenally on Steam," Walker asserts. "I sometimes wonder if any bored developers out there at major studios have noticed how insanely successful it's been. I'd wager that he's personally profited more from Garry's Mod than most of the developers on this year's AAA titles. Appeal wise, I don't think I understand it as well as Garry does. It's clearly plugged into the cultural desire to express oneself, which is exploding all over the internet right now. Garry's Mod seems like the most powerful tool out there for doing that right now."

If Newman has anything to do with it, Garry's Mod's going to get increasingly powerful as time goes on. From the mod's very first release, he's added revolutionary features to each version, and has no intentions of stopping. "When

Whether you want to make a hovering rope made of Half-Life 2's Man-hacks, set a couple of migrant Italian workers to shoot one another, or get into car design, Garry's Mod can handle it.





I'd update it," he remembers, "I'd try to improve pretty much everything. Every release I'd try to fix bugs and add at least one new feature. So you had roping, then welding, then axis constraints, et cetera. Almost every feature in GMod was added in an update of its own."

Garry's Mod benefited greatly from Newman's dedication: his passion for the experiment-turned-mainstay was unquestionable. But it didn't really dawn on him that he'd made something special until he realised he'd dealt a deadly blow to game magazines everywhere. "I don't think it was until I accidentally stumbled on the ragdoll posing," he laughs, "that I suddenly realised, 'Hey, this makes the funny screenshots part in magazines totally redundant!'"

It wasn't long after this epiphany that Newman was approached by Casa Freeman to create a commercial version of Garry's Mod for the Steam service. Stacked up against Half-Life 2, Counter-Strike, and Day of Defeat, Garry's Mod was always going to look a little kooky, and Newman was

understandably both excited and perplexed by the offer. He recalls how it came about: "Valve is pretty good with its SDK stuff. I was emailing them for advice about the engine, coding stuff, and it came up. At first I was like, 'Who'd buy it?!' But then I agreed, and, well, the rest is history."

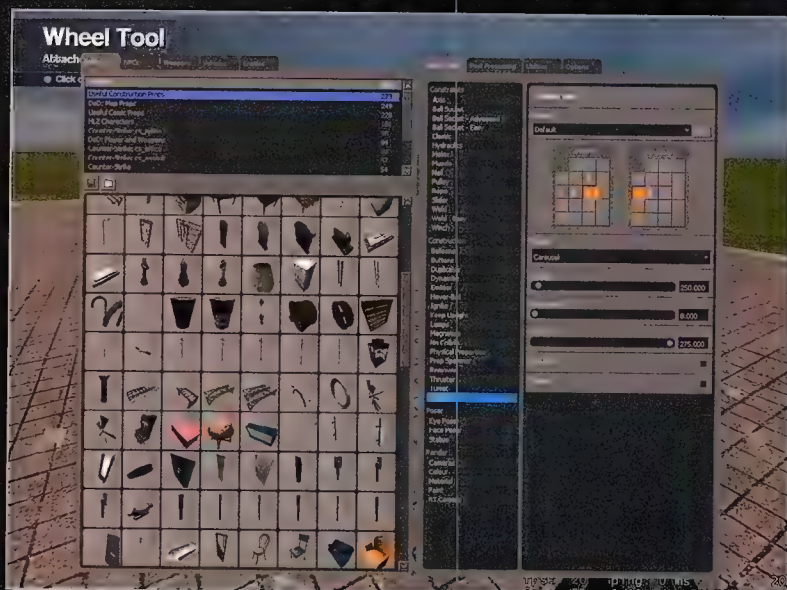
If there's anything Newman's taken away from his mod's little journey, it's that cobbling together free – even obscure – modifications on your favourite games may not be nearly as fruitless a pastime as you might think. "A lot of game companies hire straight out of the modding scene," he reveals. "It's the perfect place for them to hire from, since anyone making a mod is making it in their spare time, driven by their own ambition. Plus, they've already got experience with a major engine. Making a mod is probably the best way to get into the games industry, except for maybe sleeping with someone at EA."

Stick-with-it-ness

Of course, before your team's Duke Nukem Vs. Doctor Freeman project ever sees commercial reality, you've got to prove you've the panache to see it through to downloadable status. And these days, that's a lot rarer than it used to be. "I think success or failure of a mod depends on a lot of factors," Newman notes. "In the old days there was only really one motive for making a mod: fun. They were making mods for fun – for themselves to play – and nothing more. Nowadays it seems that the majority of mods are doing it to be the next Counter-Strike. They start out by going, 'Okay, we need people to do the website, a forum, and people to do the PR'. And it's like, 'Hang on, who's gonna do the mod?' It's, like, the last thing on their minds. Make the mod first. Your mod isn't gonna fail because your website doesn't have an impressive flash intro. It's gonna fail because you spent all the time hyping it up instead of working on it."

Walker's a little more even-handed in his spin on things. He thinks mod development was also a lot easier in the past. "It was definitely easier," he argues, "and this is for a couple of reasons. First, people's expectations of mods are much higher today. Back then, mods were such a new thing that no one really knew quite what to expect from them. Secondly, and

Below, the Garry's Mod interface. For all of the power on hand, it's a pretty easy to follow design.





Yes. It's your very own, home made, spin-stabilised rocket engine. Can you see the possibilities?

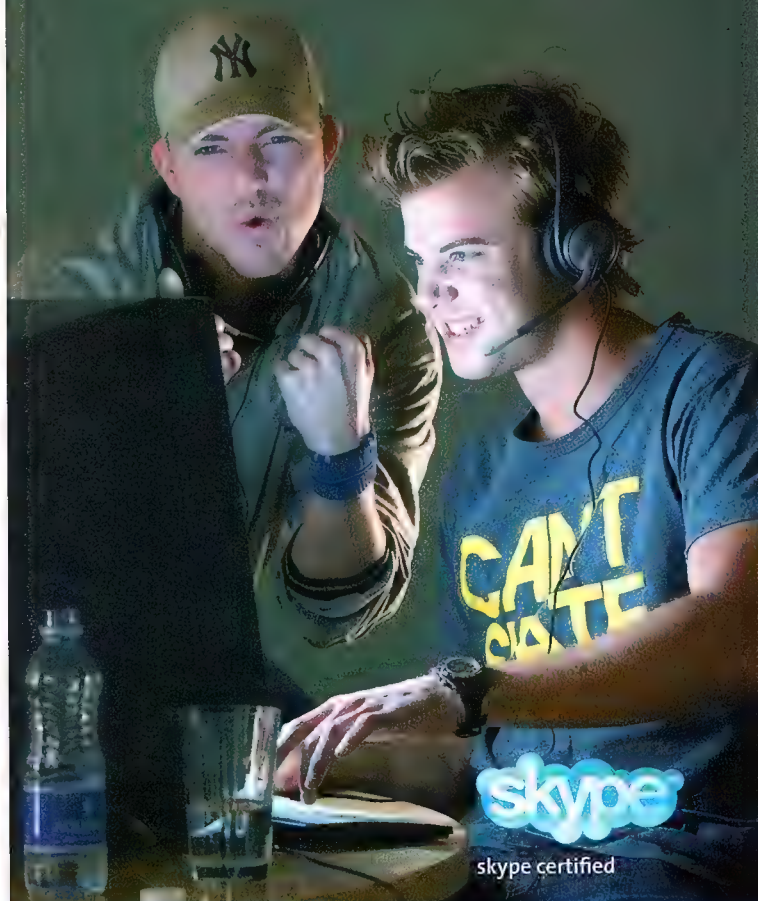
most importantly, there were many more constraints on mods back then. Constraints are incredibly useful things for helping you make decisions and get work done. There weren't many artists in the mod community, there weren't good tools for them, and art content was technically simpler. World construction tools were in their infancy, and so on. So mod makers were forced to find creative solutions to problems that fit within the engine constraints, and didn't require large amounts of content.

"Today, mod makers are largely unconstrained, able to do most of the things that a commercial product can do. As a result, expectations of them are much higher. This means that the importance of self-imposed constraints is a key requirement for success in today's mods. The common failure of mods today is to try to do too much, and then to shut down before the first version is done. I don't believe this means the scene is in jeopardy, it just means that there's a real need for objective product design to be done at the beginning of a mod."

Of course, another obstacle to reaching the complete, downloadable mod stage is an understandably volatile morale. After all, as Walker points out, you're making a small game that needs to meet a certain, ever-increasing standard of technological fidelity, and you're getting paid less for it than a McDonald's server does for flipping artery-cloggers. And what's more, the scene that once seemed like the truest representation of the DIY spirit of videogames is attracting a fair amount of skepticism in and outside of the games industry. The irrepressible Hot Coffee incident needs no introduction now, and really may have irrevocably scarred the public's image of what modding is all about – that is to say, editing games to create new experiences, rather than unlocking crass sex games. The ESRB has considered re-rating games depending on what sort of content can be created by the evil, lecherous mod teams using them, despite the easy availability of "Game Experience May Change With Online Play" tags.

It's a dangerous time in which to start a mod team, but it's heartening to see developers like Newman not only coming up with original ideas, but executing them consistently, regularly, and enthusiastically. Garry's Mod may not ultimately capture the FPS_Dougs of the world, but the creativity and freedom it allows will appeal to anyone who likes their games to let them make their own choices. Added to which, Garry's Mod serves as a response to constant complaints about the dearth of innovation in the games industry – perhaps, it suggests, we've just been looking in the wrong places. 

atomic



No advantage is
unfair

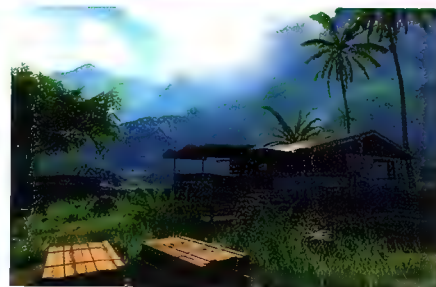
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Crysis features the most annoyingly competent helicopter pilots since the original Half Life. Oh, how you'll hate the sound of chopper blades...

Crysis

Nanosuits, physics and aliens – oh my!
David Hollingworth has a Crysis.

It's dusk. Clouds scud across the sky as the light begins to fade, highlighting the group of men smoking cigarettes in the shadow of a truck no more than thirty meters away. The truck, and the men around it, are in a small military base protected by earth mounds, guard towers and emplaced machine guns – and you have to get in there and sabotage some equipment...

This is a common mission you'll be faced with in the early stages of Crysis, the long awaited FPS from Crytek, and the spiritual sequel to Far Cry. Like Far Cry, how you go about the mission is largely up to the player and their preferred style of play; but in Crysis, you have even more options thanks to the near future setting.

The game places you in the hardcore shoes of a spec-forces type with the call sign of Nomad. You're armed with an assault rifle and pistol to start with, but your biggest asset is your Nano Muscle Suit. It's no set of MkII MJOLNIR armour, but it's pretty damn cool – in the game's opening cut scene it helps you survive a chute failure during a HALO drop onto a South East Asian island. You live, but you do get cut off from your squadmates, which leads into a nicely paced set of encounters and missions that let you learn the limits of your Suit and get used to Crysis' physics-rich gameplay.

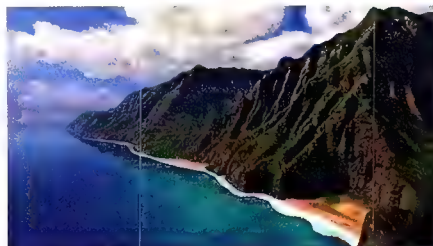
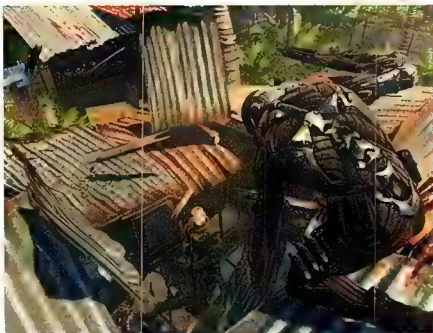
So you might solve the above tactical problem by mounting a silencer and scope on your assault rifle, taking out the guard in the tower and the nearest machine gunner at range, then sneaking in with your Suit set to Stealth mode. You might prefer to switch to your shotgun, set your Suit to Strength mode and make a running leap over the mounds and onto a roof, then start popping anyone in

range. Or, our favourite, scope up with a sniper rifle, Stealth, get into the perfect position, then put a round into the truck's gas tank, blowing it up, killing guards and collapsing nearby towers.

There are also many missions that call for a stealth approach, or for you to take a vehicle from point A to point B – on the up side, failing to do either is not a mission breaker, making for mad dashes on foot through miles of enemy territory after having your boat snag on a rock because it was buffeted out of the water by an air to ground missile. We're still playing through the single player game, but we're already looking forward to the replay.

It's like a giant sandbox made of HE and flimsy





plywood, and is a hell of a lot of fun.

But it's not all wine and barbed wire roses. The one big whinge we have is that for a game with such a powerful toy as the Muscle Suit, why then does every guard in a flak vest seem ten times harder to kill than we are? You'll pretty much not want to stop firing at someone until you've put a whole clip into them, as rounds seem to literally ping off NPC armour until the cows come home. If it were possible to ditch the Suit, and simply wear one of those bullet proof flak vests, we'd do it in a flash. For a game with such excellent AI and a physics engine to match, the sense that you're still playing an old school shoot-em-till-their-HP-is-gone shooter is galling.

But after every annoying fight with three grunts that manages to empty your entire inventory, you can still look around and enjoy what is possibly one of the finest graphical experiences you'll ever encounter. Volumetric clouds fill a hazy sky that fades down into a horizon that seems as clearly defined as the ground at your feet (which you can see, by the way, a touch we always love in an FPS). Trees and foliage sway in the breeze; the same breeze that ripples the blue water by the island's



Once the fire starts and the smoke billows, you'll realise this is more than a game engine, it's a game engine of destruction. Beautiful destruction.

shore, and dappled object-sourced shadows flow across the ground and your weaponry. And as has been hyped, it's not static, either – a large amount of that pretty scenery can be brassed up and blown away, which folds right back into the gameplay.

Of course, the graphical wow comes at a processing price. The minimum specs may seem reasonable, but you really don't want to bother with Crysis on a single core PC with only 1GB of RAM, let alone one that's running DX9 on XP. Believe it or not, Crysis is actually the one good reason we've come across to upgrade to Windows Vista. Similarly, it's a good thing that the not-over-priced 8800GT has just hit the streets.

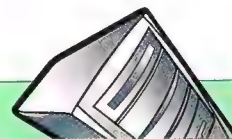
There's a solid multiplayer game as well, but again, we have some lingering doubts. For one thing, it forces you to link up to other players via GameSpy's Comrade service, and we don't like any piece of software which tells us what to do. It's also light on the maps, and features only two gameplay modes; after the multiplayer joy that is Halo 3 and Call of Duty 4, Crysis just seems a



little... sparse.

But that aside, everything that makes the campaign game solid is here as well, and going up against an opponent that's just as clever in using the environment as you are is a real thrill.

Crysis is not perfect, not by a long shot, but few games have inspired the office story-telling and bragging that this game has. And let's face it – can you ever get tired of blowing shit up? We didn't think so, not when each explosion is an individual work of destructive art.



Developer Crytek
Publisher Electronic Arts
Website www.ea.com/crysis/

VERDICT

10/10 graphics;
open-ended gameplay



8/10 combat mechanics;
sparse multiplayer; seriously
hardware intensive



SCORE

9.0
OUT OF 10





Unreal Tournament 3

Multi-kills have never looked so good. James MacLeod checks out Unreal Tournament 3.

Timing, as they say, is everything. Six months ago, Unreal Tournament 3 would have been the shiz. It holds on to, and improves on, the unique gameplay, multiplayer aspects, and out and out fun that defined the previous installments. Despite adhering to the old mantra of evolution rather than revolution (Unreal 3 is to Unreal 2004 as Halo 3 was to its predecessor), UT3 still ticks all the right boxes in regards to a next-gen sequel. In the face of all of this UT3 was destined to live in a shadow... the towering mammoth of a shadow that is Crysis. UT3 should have been the most anticipated PC FPS of the year, and it deserved to be. Yet Crysis, released in the same week, seems to have flicked UT3 out of the limelight in a serious fashion.

UT3 is the fourth in the Tournament series (it is however named after the engine it runs on: Unreal Engine 3) and does not depart from the familiar and well loved team scenario formula, which Epic

has been so faithful to over the years. There's also a flimsy (let's face it – pointless!) story that has been tossed in between rounds of Capture the Flag, Warfare (the love child of Onslaught and Assault) and Team Deathmatch to make up the campaign mode. Burdened with some uninspired voice acting (see Trend Whores - Urban Lyf), the campaign won't have the masses flocking to play. Serving as hardly more than a warm up for the online mode, many players will skip over the campaign and be none the worse for it. In regards to difficulty UT3 offers up four options ranging from the inanely easy to a serious challenge for all but the most hardened of Tournamenters. We did find several issues with bots struggling with vehicle control or getting stuck altogether. One final aspect to note of the Campaign is the option to complete it co-op style with friends online. Kane & Lynch, are you listening?

Multiplayer however, is where UT3 comes into its own. Offering up a veritable feast of maps, UT3 ensures that any player will have plenty to do for months to come. The maps, sometimes vast sweeping areas, other times claustrophobic corridors, encourage, no require, teamwork and efficiency, allowing for the development of an array of tactics. Run and gun or defend the fort and everything in between, all are viable options. Such map design is great in online play but often frustrating when working with bots, who obviously show little regard for teamwork or strategy.

The graphics in UT3 are brilliant. As earlier noted, the game does not approach Crysis in terms of graphical achievement but has the not insignificant benefit of being flexible in regards to what it will run on. This achievement is not dissimilar to Half Life 2 - running full specs will be demanding but by lowering the resolution or texture detail a satisfactory frame rate can be attained on a variety



UT3's graphics are nothing short of stellar, and they scale surprisingly well, to boot.

of machines. Character models are typical – amply proportioned, masculine heroes are the rule – but the level of detail and realism of movement in every model is admirable. In addition, blowing someone off a cliff or dissecting your mate with a rocket launcher is incredibly gratifying, courtesy of the fairly simple but effective rag-doll physics.

UT3 is not without its pitfalls, however. The most significant is the fashion in which it often feels like UT2004 madeover. It's not an intrinsically bad thing, but it would have been nice, after three years, to see some genuinely new map types or weapon additions. UT3 delivers on nearly every front – don't pass up the opportunity for another Killing Spree. Especially when it looks this good.



Developer **Epic Games**
Publisher **Atari**
Website www.unrealtournament3.com

Players **Up to 32 (Online)**
Other platforms **PS3; Xbox 360 and Macintosh to follow**

VERDICT

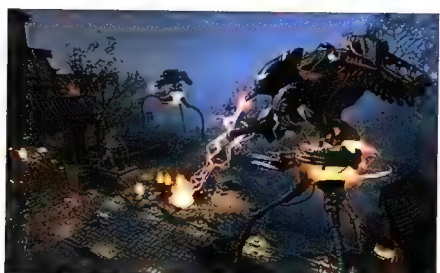
It's still Unreal Tournament;
Slick graphics; Magnificent
multiplayer; Unlimited
customisation



It's still Unreal Tournament;
It's got the Empire State
casting its shadow over it



SCORE **8.5** OUT OF 10





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Kane & Lynch: Dead Men

These two bad boys promise a lot of fun, but is David Hollingworth happy with the delivered product?

There's a point toward the end of the Michael Mann crime classic *Heat* where you can stop watching the film, and just pretend that the bad guy gets away with the heist and lives happily ever after. It's a very tempting fiction, not unlike the idea that once upon a time Kane & Lynch was a great game waiting to happen, full of promise and dark threat.

The game's premise is a winner. On the way from Death Row to his execution, your bad self, Kane, is broken out of his van by a gang of heavily armed ambushers, escorted across town, and told in no uncertain terms by his previous employers that he will do their bidding – or his family will face the consequences. Kane's a bank robber, and that's what he has to do to save his family. This is complicated by his new partner, Lynch, an unassuming sociopath with a chemical dependency and whose sole job is to watch Kane on behalf of the aforementioned employers. It's an excellent set up, offering constant motivation to get out there and rob some shit and shoot some cops.

Unfortunately, while the game soars when it comes to mood and storytelling, it fails incredibly when it comes to actual gameplay. The main culprit appears to be the fact that this plays like a rushed port from the 360 version of the game – not only is the control scheme and menu setup suspiciously console-like, but the Windows Live sign up screen even features the tell-tale Xbox controls listed along the screen's lower edge. There's just no excuse for

that kind of thing.

Sadly, though, that's not the only problem the game has. As stated, the story is gritty and dark with strictly M-rated dialogue, and quite well-written and acted. But once the dialogue stops and the action starts you lose any sense of immersion that the successful aspects of the game have managed to create.

The game uses an over-the-shoulder camera system that seems without any obvious flaws. You can shoot from the hip, which is less accurate, or you can zoom into the iron-sights. However, given that the camera remains hovering over your right shoulder, you end up being able to clearly see enemies, and place the cross hairs bang on them, but not able to shoot them if there's anything in Kane's actual line of sight. It's particularly troublesome in an early sequence where you're holding off wave after wave of LAPD's finest from the bottom of a flight of stairs. If your target's on a landing above, the stairs end up blocking apparently clean shots. Frustrating to the extreme, but you can get used to it.

What's impossible to get used to, though, is the seeming invincibility of some of the aforementioned finest, which, combined with some very loose ballistic modelling, make the shootouts seem more akin to *Grand Theft Auto* than the level of gritty drama the game strives for elsewhere.

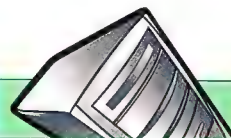
It's all a grand shame, as this is a game we've been seriously anticipating. It looks good, at least, though it's far from the gloss and polish of next gen titles like *Call of Duty 4*. Portions of the environment are destructible, so the wild gunfights at least feel nasty and dangerous. But all the environments seem a little bland and empty, as if the game is missing a layer of detail that didn't quite make it into the mix.

Multiplayer offers a similar set of grandiose intentions and disappointing reality. For a game that features two antagonists, you would expect

Finding cover is essential to surviving - it's just a shame that the game's cover system is so damned arbitrary. Oh, for *Rainbow Six: Vegas*...

online co-op to be a natural inclusion, but it is sadly lacking. The Fragile Alliance mode, however, offers some unique opportunities; in this, you and seven other robbers must take down a bank to make off with the most amount of cash. Players can betray their pals at any time to increase their take, and the dead player respawns as a cop. It's great on paper, but the same camera and gameplay issues that dog the campaign get in the way of what should be an excellent change-up on traditional death match.

If only we could have stuck with the anticipation phase of this game, but like in *Heat*, the real ending is not a good one for the badguys.



Developer **IO Interactive**
Publisher **Eidos Interactive**
Website **www.kaneandlynch.com**

Players **1 to 8 (but no co-op!)**
Other platforms **360, PS3**

VERDICT

Excellent story; solid voice acting; robbing banks for fun and profit



Obvious console lineage; tricky camera modeling; arcade-like damage model



SCORE

6.0
OUT OF 10



At least the game looks a lot better than it plays.



The Witcher

David Hollingworth gets all windswept and angsty in this RPG epic from Poland.

There are two kinds of people in the world. There are those that see an RPG experience as no more in depth than staging a racially motivated home invasion, making off with all the booty and gear that you can carry, and then reaping the rewards of selling wolf ears, goblin tongues and dried dwarf parts to the local populace – the local populace you haven't killed yet, that is. Then there's the second kind of RPG fan, the kind of person who will develop a backstory for their character, then devote as much time to mastering, say, wheat farming, as they do mastering the art of the sword. They will sit in make believe inns and talk for hours about dark lords, orphaned princes, and their own dark origin.

We guess there's also a third kind of person, too – the ones that beat up the first two for being total geeks, but we don't care for their kind here.

The Witcher, while replete with action aplenty, will definitely appeal to the more cerebral gamer. It's a rather grim tale of, you guessed it, a Witcher, based on a series of novels by the Polish scribe Andrzej Sapkowski. His is a dark world, over run by monsters and other evils, relying upon

the skills of a few hunters, witchers, to keep the darkness at bay. It's a thankless job, as the witchers are actually outcast mutants, effectively; they are immune to plague, blessed with seemingly supernatural powers, and generally distrusted by the local populace, who don't realise what a lucky gameworld they've ended up in, and aren't likely to be slaughtered by the player as the game progresses.

And there's a lot of progression in this game – up to 70 hours of gameplay awaits you, depending on how many of the sidequests you take on, and how involved you get with the game's plot. In that time you'll engage in alchemical research to make potions to boost your skills, cast spells to smite enemies, and cut up a lot of beasties with your twin swords – a steel blade for humans, and a silver one for supernatural type baddies. The game's dialogue is suitably dark, and you're just as likely to see beggars pissing against walls and the other NPCs engaging in grim acts, as you are to see them tilling their fields or wandering around doing whatever it is NPCs do while you're out saving them from toothy doom.

The time of day and the weather also play a part in the reactions of NPCs, and in the overall look and feel of the game. The Witcher uses a highly modified version of BioWare's Aurora engine, and features a robust lighting model that includes day/night cycles and random weather. It's no next gen graphics extravaganza, but with environments created in 3DS Max and then imported into the game engine, then painted with custom textures, it's still a visual treat.

Your own interactions can also come back to haunt you, thanks to the game's decision



A rare crowd shot without ranting prostitutes or beggars pissing up against walls. Took us ages to get it, too.

consequence system – things you do and say may not effect you immediately, but some hours later the consequences will come home to roost. There are no lightly made decisions in this world.

It may all sound like a rather grim affair, and it is, but in a good way. The Witcher offers a dedicated and in-depth single player experience that neatly places you in the shoes of the story's main character, and in the context of the game's wider world. It's not a game for everyone, but for RPG fans looking for a quality title that simply drips atmosphere, The Witcher is a game that simply cannot be ignored.



Developer **CD Projekt RED STUDIO**
Publisher **Atari**
Website **www.thewitcher.com**

Recommended
**Intel Core 2 Duo; NVIDIA 7900GTX
or ATI x1950pro; 2GB RAM**

VERDICT

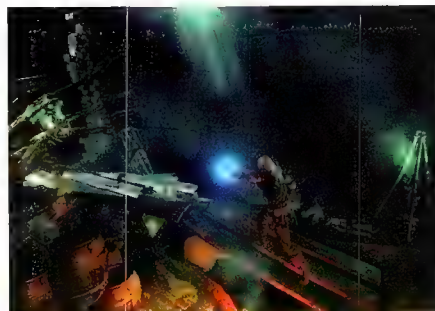
Excellent story; moody gameworld; great RPG mechanics



So very, very long; not easy to just 'pick up'



SCORE **8.5** OUT OF 10





Call of Duty 4

David Hollingworth sounds off like he's got a pair.

Call of Duty was one of the games that defined the WW2 FPS genre, and Call of Duty 2 was certainly a worthy follow-up. Sure, Call of Duty 3 really did feel like, to borrow a World War 2 analogy, a WW2 FPS too far, but that was more due to the series being farmed out to new developer. Infinity Ward, the developer behind the first two games in the series, has seen the writing on the wall and wisely chosen to update the fourth release, setting the action in a near future that's full of brushfire wars, toppling governments and vicious nuclear incidents.

Score one for Infinity Ward – CoD 4 is a stunning game, and very possibly the best FPS this year.

The game starts after a brief intro into the political situation around the world ("Oh God, Oh God, we're all going to die," basically), and then introduces you to the first of the game's two main characters, the improbably named 'Soap' MacTavish, and the game's general control scheme. After running through a brief training mission for an op aboard an ocean-going freighter (your success in which will also set the difficulty for the rest of the game) you're sent into action on the real thing.

In a very cleverly realised sequence, your team is dropped on board the freighter, where the difference between shooting pop-up cardboard baddies on the range and double-tapping the crew sleeping in



You can stage your own Surge operation!

their bunks becomes readily apparent.

Infinity Ward aimed for an even more cinematic than usual feel for Call of Duty 4, and the company has nailed the atmosphere of a tense political action thriller from the get-go. The proprietary engine features rich dynamic lighting effects and object sourced shadows, upping the game's dramatic immersion by a factor of ten. God lights lance through dark rooms and dust and debris hang in the air, while the game's NPCs are motion-captured to near life-like fluidity. The voice acting can get a little repetitive at times, especially the American portions of the game, but the overall impression is one of near-Hollywood polish.

The modern setting also allows for a greater degree of fluid story-telling. The action is tracked across a virtual globe, like a scene from a Tom Clancy film, zooming in and out of hotspots and military actions. You also occasionally find yourself in the shoes of other players in the drama; one notable early sequence, over which the credits roll, lets you 'control' a captured Middle Eastern politician as he is driven through a city rent by unrest and bloodshed. It's a railroad, but the sense of place and story it delivers makes it a gripping part of the game.

Then, there's the multiplayer, where the game begins to truly shine. Like many games coming out on PC and Xbox 360, Live functionality is played up with a wide range of achievements and an experience system that effectively turns the game into a combination of traditional military FPS and RPG. As you progress through 55 levels you gain new ranks, unlock new abilities (such as the last ditch effort to draw your pistol after a kill-shot drops you – always awesome), and get access to new and more accurate weapons.

Unlike recent hit Halo 3, the damage model is a lot more demanding – sure, there's no health bar and spending long enough in cover will recover

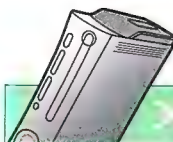


There's a marked difference between the SAS and American play styles. One is stealthy and professional... one is not. Guess which is which.

you fully, but in multiplayer those situations are rare. Headshots, accurate burst fire, and a host of things that go boom make for a lot of one-shot (or one-detonation) kills. One of the most anticipated features of the multiplayer also enforces a cautious play-style – get three or more kills in a row, and you earn the ability to call in air-strikes or summon a UAV scout craft to boost your radar. There's little of the running and gunning you'll see in many games; instead, fights are tense games of explosive cat and high-calibre mouse.

CoDs always had a passionate multiplayer following, and the 16 maps, 13 game types and amount of customisation and just-one-more-game-and-I'll-level-up addictiveness makes CoD 4 like crack to an addict.

This is an astoundingly polished game that will please any FPS fan. Call of Duty 4 comes closer to being the perfect game than any other title before it.



Developer **Infinity Ward**
Publisher **Activision**
Website www.callofduty.com
Players **1 to 32**
Other platforms **PC, PS3**

VERDICT

Stunning visuals; varied campaign gameplay; addictive multiplayer

Some less than stellar voice acting; campaign may be a bit short; getting shot repeatedly in the head



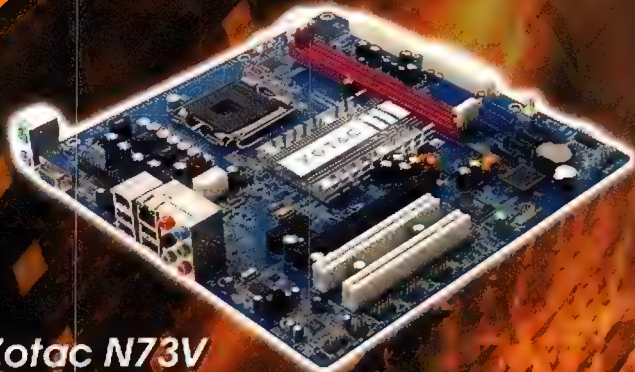
SCORE

9.5
OUT OF 10

atomic

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Radeon X1950 XTX 512M: 6134
HD 2900 XT 1GB: 6916
HD 2900 XT 512M: 6944
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Hellgate: London

James Matson discovers that Hell really is repetition... repetition... repetition...

The obvious road for a handful of Diablo developers splitting from Blizzard and forming their own company, was to design a spiritual successor to the venerable RPG hack n' slash. What gamers ended up with hasn't quite hit that mark. Hellgate: London has the heart of Diablo buried somewhere inside, but it's under a thick layer of bugs and flaws that might just be enough to turn people away. Although offering a single player and multiplayer component, we're not going to talk about the solo adventure, because it is – quite literally – exactly the same as multiplayer sans the extra people. Multiplayer for most people is where the action will be.

Hellgate drops the player in the year 2038, where the usually drab city of London has been spiced up considerably thanks to the invasion of Demons from Hell. The setting has allowed Flagship to play around with a hybrid fantasy sci-fi setting that is one of the game's biggest draw cards, with art direction on the armour and weapons reaching a balanced blend of fantasy and futuristic. The ambient musical score also moves faultlessly from horror symphony to pumping techno. The usual array of classes are available, from the marksman – a typical gun-toting damage dealer – to the Engineer, who employs

robots and drones to aid in combat through the game's largely subterranean sewer dungeons. Once your character is ready, you're put through your paces in several introductory missions. This is where Hellgate: London falls down, hard.

As is the fashion nowadays, game progression is taken care of by NPC provided quests that reward experience points or gear for your character, but the first few missions are enough to induce brain atrophy. Kill ten of creature X, return to base, grab a new quest and kill ten of something else. Combined with vapid narrative around the quests, expect your mouse to break under the repeated clicks to get through storyline elements. You'll struggle to push through the early character levels to hit anything really enjoyable. When you start forming groups with other players to tackle the larger dungeons and harder quests the fun factor increases. Suddenly the Diablo heart is revealed as your group is assaulted on all sides by hellspawn with no time to spare. The pace picks up, and the adrenaline rush kicks in nicely.

The action is accompanied by visuals that mostly drip with atmosphere, bump mapping and lighting effects, but animation is a sore point. Characters glide rather than run and destructible objects trigger cheesy explosion effects. Enemies are rendered beautifully, and like Hellgate's environments look stunning in screenshots, but seem like a rush job when everything is moving.

The faster pace and team dynamic can get you past the flaws, but then there are the bugs. Most new games – particularly online – come with bugs at the start, we can accept that. But those in Hellgate make us want to stab our eyes out with a spork. Players in your group turn invisible randomly and can't be found without teleporting out and back into the level, while some maps have obstacles you get stuck inside and are unable to free yourself without – you guessed it – teleporting out and in again. These



Our guy hangs back while the Engineer's drones do the dirty work.



There's something about chubby Zombies that make us laugh. Every time.

glitches serve to carve up a seamless dungeon romp into bite-sized annoying chunks of fail.

Hellgate: London is the ultimate bell curve, starting off flat, rising to a middle peak of fun and excitement and tapering off to repetitive game play unsuitable for gamers who don't get a thrill out of level grinding and item acquisition. If pure hack n' slash is what you're after, or you're patient enough to let Hellgate mature there's fun to be had, but the longevity factor is doubtful. Certainly there's no incentive to pay the optional monthly subscription fee for added features. Go install Diablo II while you wait for Hellgate: London to get more meat on the bone.



PC

Developer **Flagship Studios**
Publisher **Namco**
Website **www.hellgatelondon.com**

VERDICT

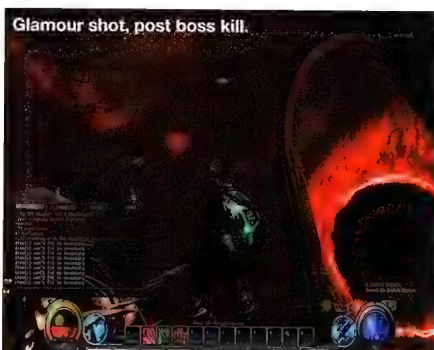
Solid art direction; fun in a group; diverse classes



Repetitive; clunky animation; bland narrative



SCORE **6.5** OUT OF 10



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Lucky Miles

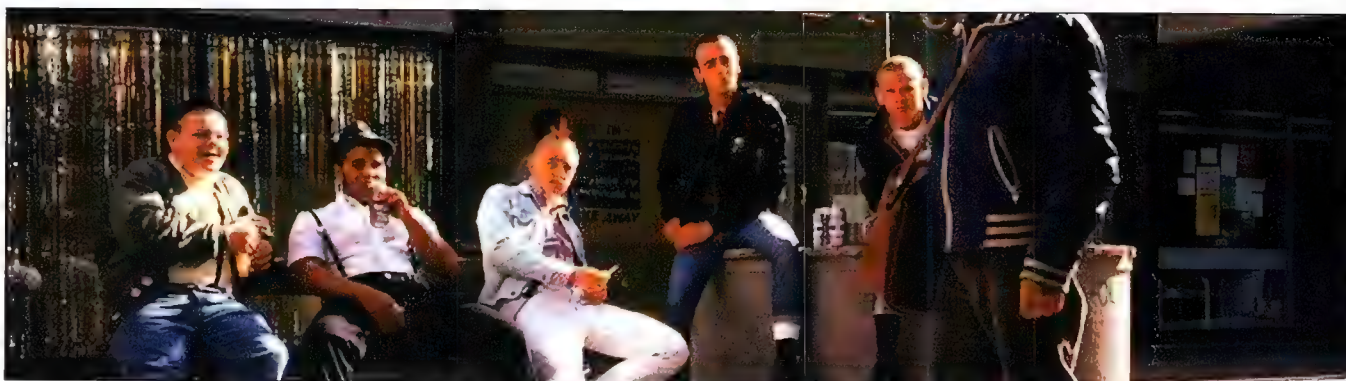
DVD

Distributor: Madman / Director: Michael James Howland
Starring: Kenneth Monaghan, Don Hany

After hitching a ride with three dodgy Indonesian fishermen, a group of refugees – half of them Iraqi, half of them Cambodian – find themselves dumped smack bang in the middle of Australia's desolate west coast. They're told there's a bus waiting for them. Waiting just over the hill. It'll take them to Perth, a city that's a bit like "like Phnom Penh." There is, of course, no bus. And, with the fishermen steaming off into the distance, there's no other option for these desperate asylum seekers but to walk. Based on a number of true stories, *Lucky Miles* chronicles the journeys of two of the refugees and one of the fishermen who, through a mix of karma and stupidity, finds himself walking the desert. Each of the trio is searching for something different. A way home. Political asylum. Or a father they know nothing about, aside from the fact he

works in Perth. Pursued by a bumbling Army Reserves unit and wearied by the harsh conditions of a continent they know absolutely nothing about, the three attempt to make their way to Perth. Or to Broome. Or to the 'bad town' where half of the refugees manage to get themselves picked up by the police after wandering into the pub and asking when the bus is supposed to arrive. Their destination constantly changes. *Lucky Miles* is a very Australian comedy that's actually very funny. It's subtler than you'd think, politically, so don't neglect it for fear of being preached at. We heartily recommended this quirky local flick. **CT**

score **9.0**
OUT OF 10



This is England

DVD

Distributor: Madman / Director: Shane Meadows
Starring: Thomas Turgoose, Joseph Gilgun

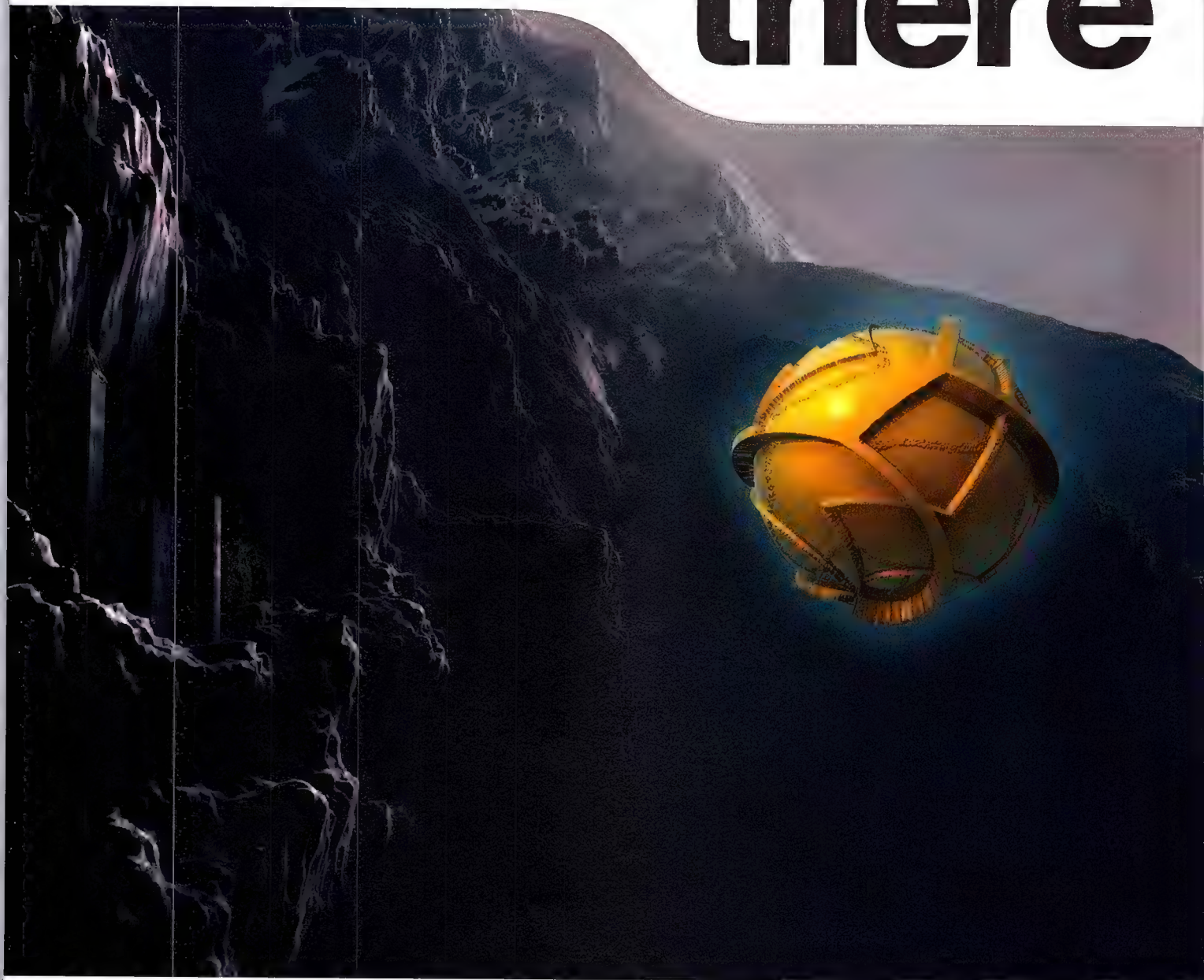
It's the early eighties and the UK is not a happy place. Margaret Thatcher is in power. The Falklands War rages. Young Englishmen are dying. One of whom was Shaun's father. *This is England* tells of what happens when Shaun, a boy who faces incessant bullying at school, finds himself befriended by a group of skinheads. His older friends not only look after him, but introduce him to girls and parties, alcohol and marijuana, new clothes and hairstyles. For the first time, Shaun belongs.

All is well until Combo, a former member of the group and diehard nationalist, returns from a lengthy stint in prison. Consumed by rage and bitterness, Combo rips the group in two and drags young Shaun into a world of racism and violence. *This is England* manages to successfully dance between light and dark. At times it's hilarious. At other times, it's

incredibly disturbing. Interestingly and, perhaps, worryingly, writer/director Shane Meadows based a great deal of what happens to young Shaun over the course of the film on his own childhood experiences. Perhaps it's this grounding in reality that allows him to paint an all too realistic portrait of underclass life, unbridled xenophobia and the corruption of innocence. Don't watch this if you're after a mindless hundred minutes of entertainment. It's too grim, too thought-provoking for that. But do make the time. *This is England* is bloody brilliant. The story, the soundtrack, the acting and Meadows' portrayal of that rather ugly period of British history are all golden. **CT**

score **8.0**
OUT OF 10

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Our technicians are constantly adopting the latest technology in our pursuit for gaming performance. Our featured product this month is an overclocked gaming system based around the Intel Q6600 Quad Core CPU, Abit ip35pro motherboard and Chaintech Apogee 1066Mhz Memory. With three soon to be released gaming engines all sporting multithread support, quad core CPUs are set to take over the performance crown in the gaming arena.

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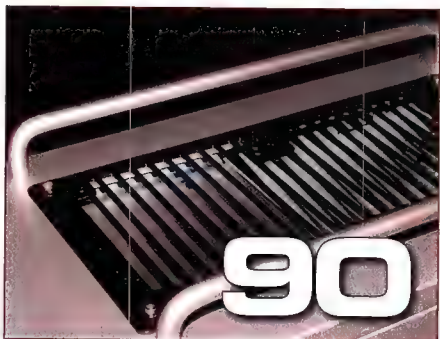
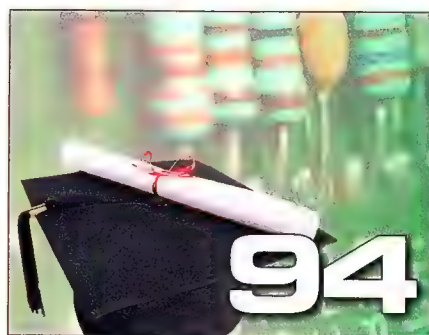
HANDS-ON TUTORIALS FOR THE TECHNICALLY INCLINED

It's a great month for getting your hands dirty and dusting off your tools – not only do we finally complete the epic build that is Ron Prouse's arcade dream machine, but Ron also walks us through a very simple but elegant mod of a shiny case from In Win, chock full of fans, clear Perspex and sexy, sexy details.

Our educational sections continues to inspire, with Chris this month

getting down with some familiar IT pros and tackling the issue of how easy it really is to get into the IT field. If working as a code monkey, tech or dev is your dream job, this is must-read stuff.

And finally, the ever-generous Dan Rutter shares his wisdom with our troubled readers. Is there nothing he cannot do?



TECHNIQUE CONTENTS

MAME box tutorial, pt3 86

It's crunch time as we polish off the glass, Perspex and other shiny stuff to put the last bit of effort into our MAME box.

In Win case mod, 90

Ron Prouse takes a less is more approach and makes some subtle – and one or two not so subtle – changes to a shiny silver In Win case.

Atomic.edu, 94

A lot of us take our work in the IT sector for granted, but for some of us it's a dream job made of pure win. Chris Taylor takes a look at just what it takes to get real work in a real IT company.

Input Output, 96

Dan Rutter answers a whole raft of questions this month, on topics as diverse as cybersquatting and what you can do with old obsolete memory cards.

Fallout, 98

Logan Booker is back and he's talking about... bread? And knives? And some sort of Creed, we think. Actually, we don't know what he's on about, but he is back.

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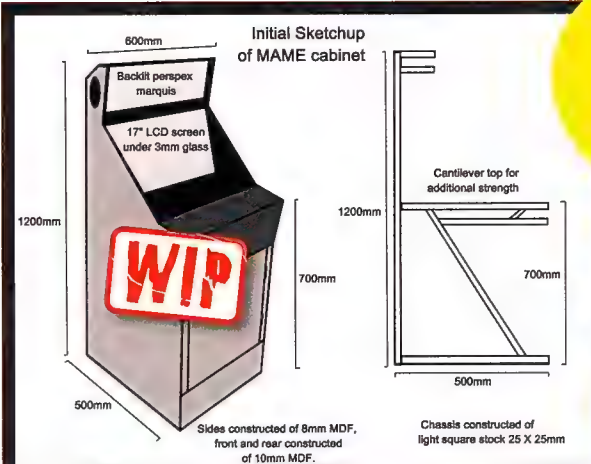
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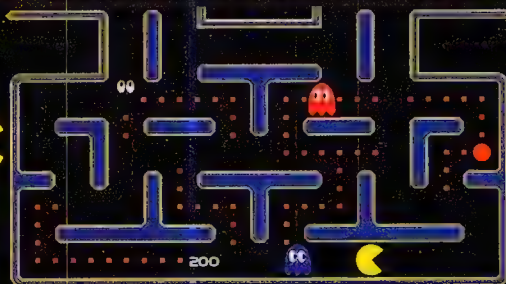
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THE MISSION

Construct a PC case that resembles a classic arcade machine, and then install MAME onto its drive for some old-school gaming goodness. This is part three of a three-part tutorial.



TOOLS

The tools used in this tutorial are mainly those found in the average workshop, including a router, circular saw, jigsaw, mitre box, drill press and drills, block plane, electric sander, G-clamps and a grinder. The important thing is to keep the structure 'square' and 'level', so a set-square, sliding bezel and a tape measure are critical items to get all of the angles perfectly symmetrical. The main requirement is a decent bench or table, providing a solid, flat surface to operate on.

SUPPLIES

OZSTICK

www.ozstick.com.au/, Ph 0401 845 726

1 x IPAC2 - I-PAC2 Keyboard Encoder \$70.00

1 x WK01 - Wiring Kit \$20.00

8 x TM01 - T-Moulding Black \$2.20/metre

PC CASE GEAR

<http://www.pccasegear.com/>, Ph 03 9584 7266

2 x Nexus 120mm Real Silent Case Fan, \$29.00ea

2 x black aluminium fan filters, \$9.90ea

3 x Metres Techflex braided cable sleeving, \$3.30/metre

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Marquis and side-panel decals. Cost is calculated by the metre², so it is very dependant on your design!

Additional Supplies:

1 x Crompton Bikini 8W Fluorescent Batten Lamp, \$41.50

1 x Solver Brite-Glow Silver enamel, \$28.00 / L

1 x Solver Brite-Glow UV Gloss Clear enamel, \$33.00 / L

1 x 2 metre Arlec extension lead, \$4.00

1 x 3mm slot-cutter router bit and arbor, \$35.50

1 x 1.8 X 1.2 metre sheet of gloss white laminated MDF, \$100.00

1 x 3mm Slot-cutter router bit, \$26.00

1 x Pair Kenwood 100mm 3-way 4Ω Car Speakers, \$53.00

1 x 4mm thick glass 495 X 145mm, \$10.00

1 x 2mm thick glass 495 X 145mm, \$10.00

1 x 2mm thick acid-etch glass 455 X 550mm, \$20.00

1 x 3mm X 55cm aluminium checker-plate 'step tread', \$55.00

1 x HPM Junction Box, \$12.00

1 x 3.5mm to RCA lead, \$10.00

1 x White Knight Glass Frosting aerosol paint (blue), \$12.95

DIFFICULTY **HARD**



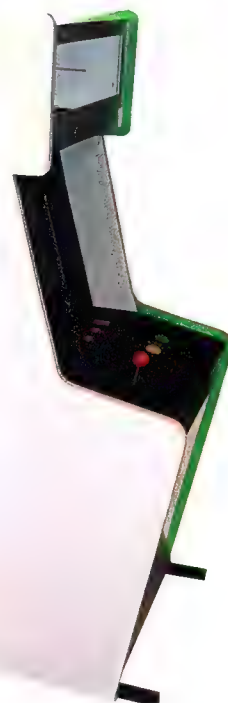
MAME Tutorial part 3

It's time to put The Final Countdown on the CD player, as we get ready to finish the build with Ron Prouse.

At the end of Part 02 the basic chassis structure was reasonably complete, and all of the inner panels were ready to paint. To give the cabinet some protection against hard knocks, the lower kicker panel was clad with 1mm thick brushed aluminium, and that made the choice of the final colour scheme much easier – high gloss white external with silver inner panels, which can be brush-painted to give a similar appearance to the aluminium. Two coats of Solver silver enamel were applied, sanding between coats, and then two additional coats of Solver Brite-Glow UV Gloss Clear enamel were added to give an 'under glass' finish.

The next step was one of the most important from an aesthetic viewpoint... what shape do we want the final cabinet to be? Right from the initial schematics the idea had been to keep the project looking as 'authentic' as possible, just 2/3rds the size of an original machine. Playing around with an image of the existing chassis in Photoshop was the easiest way of getting a preview of the possible combinations, and also highlighted potential issues such as the radius of the corner cuts. Once the choice of shape was made, the planning was simply a case of marking out the lines!

The outer 'skin' was fabricated from 16mm thick MDF panels, covered with an 8mm thick laminate called Duropal. We chose a high gloss white finish, part of a new range that features an attribute called Gloss



▲ Working on the two panels simultaneously ensures symmetry.

DISCLAIMER

Whenever you pick up power tools, cutting and grinding instruments, or even a can of spray paint, you are putting your general wellbeing at risk from some form of industrial level accident. We take every precaution by wearing appropriate safety equipment, using tools with respect and within their limits, and by not inhaling the contents of glue and paint containers. We suggest that you should follow a similar regime, and seek professional assistance and guidance if you are attempting a task outside of your skill set.

NB. atomic MPC and staff are not responsible for your safety or longevity.

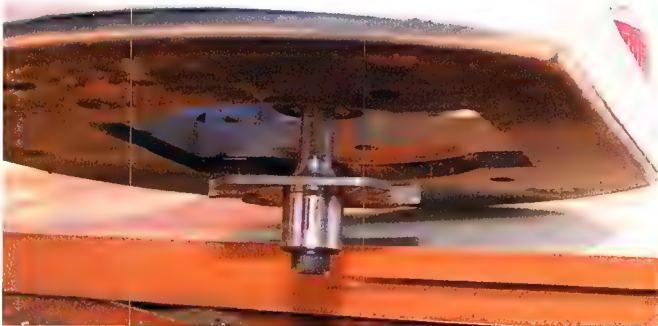
Element System (GES). A 1.8 x 1.2 metre sheet added \$100 to the cost of the build, but it looks so 'factory mirror-finish' that it was worth it. It also has a clear, protective removable film that minimises the finish from being marred with scratches while it is being machined. The sheet was cut into halves, lengthwise, and then temporarily attached to the chassis square to the base and rear. The outer panels were to be cut to the desired profile, 25mm outside of the chassis perimeter. The easiest method to get the shape was to use 25mm wide masking tape (green in the picture) as the outer boundary, and then marking in the curves using something with the right radius – in this case, an 80mm DVD was the perfect size.

Cutting brittle laminate is a little tricky, and requires the use of a fine tooth blade which won't chip the coating along the edges of the cut. Using a jigsaw with a 25point/inch blade, all of the straight lines were cut first, with the curves being cut out last. Once the basic shape was achieved, the two sides were clamped together and a half-sheet electric sander with 80-grit paper was used to get all of the edges flat and even. The concave curves were shaped using a large diameter drum-sander and electric drill. Working on both panels simultaneously ensures that they will be perfectly symmetrical, and also cuts the sanding time in halves!

Into the groove

An upright arcade cabinet has to have T-moulding, or it just looks all wrong! The next step was to use a router and slot-cutter to cut a 3mm wide groove, 12mm deep, around the outer edge of each side-panel. The T-moulding has a barbed 'tongue' that is compressed down into the recess, and then locks into place as it expands back into shape. If you have not used a router before, it is best to practise on some off-cuts first, and make sure that you keep your body extremities well away from that 20,000+ RPM blade; losing a body part is a real possibility if you don't exercise caution. Make sure that the side-panel is well supported on a solid surface so that it can't move around, and try to cut the groove in one single pass.

Fitting the T-moulding is a straightforward process, starting at one end and tapping it into place, with a nylon or rubber mallet and block of wood, along its length. We found that leaving the moulding out in the sun for a few minutes softened it up, making the task much easier, but try to avoid stretching it as it will 'shrink' back later at the ends. On concave bends it is better to cramp as much moulding into the curve as possible, and on convex bends you can cut away small sections of the barbed spine to keep the curve kink-free. Once the two sides were prepared for the final fitting, Max Bond Building adhesive was applied to the steel sections of the chassis, and the panels screwed on from the inside using 50mm tech-screws.



▲ Take real care with high-speed rotating blades!

Maker's marquis

The marquis had been fabricated as a separate unit from the start, as there was some additional complexity due to the fitting of speakers, lighting and glass. The 3mm slide-out shelf that was fitted in Pt 02 of the tutorial is now recessed, and a length of 42 x 19mm timber cut to width with a 3mm rebate routed along its length. This formed the platform for the Crompton 8W 240V fluorescent lamp that will backlight the marquis, with the light positioned in the centre of the opening and close to the glass. The marquis 'MAME' banner was printed on opaque vinyl, and fixed to the middle of a 2mm/4mm glass sandwich. The glass was then fitted to the inside of the marquis, and held in place with glazier's pins.

I wish that I could give due credit for the origin of the image, however after I downloaded it I lost the URL from whence it came. Anyway, Kudos to the artist, who offered it 'royalty free' to the MAME community. The Kenwood 3-way speakers were the last thing to be fitted, hidden from view by the 25mm overhang at the front of the marquis. The marquis was then screwed and glued down onto the top of the chassis, and also attached to the side-panels.



▲ The LCD is secured with steel straps to keep it in alignment with the screen mask.

The next step was to wire up the marquis, LCD screen and speakers. As there wasn't enough physical room for a 240V plug to be passed down through the top of the cabinet, the only alternative was to run just the 240 cable down through a 12mm hole to a junction box at the base of the screen, and then on to a plug at the 4-way power point. This also made it possible to disconnect the wiring and slide out the fluoro shelf with a minimum of fuss later. A 58mm hole was drilled through the monitor shelf, and neatened-up with a plastic desk grommet, for all of the wiring to pass through into the lower component cavity.

The final fitment of the LCD screen included the fabrication of a 19mm wide steel 'strap' bracket screwed into the upper frame supports on each side. The bracket was padded with high-density foam so that it can keep a firm pressure on the LCD, pushing it up against the inside of the screen mask. Once the system has proven to be stable, all of these wires will be secured with cable clips.

Play it cool

Even though the Pentium 3 'on the inside' will run very low temperatures, it still seemed prudent to get rid of any excess heat generated by the PC components, amplifier and LCD screen. The airflow through the lower cabinet is the opposite of the average case, with air being drawn in from the rear of the cabinet through a large aluminium vent and pushed out through the front panel near the player's knees. The active exhaust cooling utilises two 120mm Nexus Real Silent Case Fans, running at 7V so that there is good airflow without any noticeable noise. The blow-holes were 'dressed up' with black aluminium fan filters, and wire guards fitted to the inside of the fans to stop any of the wiring getting caught in the blades. The upper, or screen area of the cabinet is passively cooled, with another aluminium vent allowing warm air to exit.





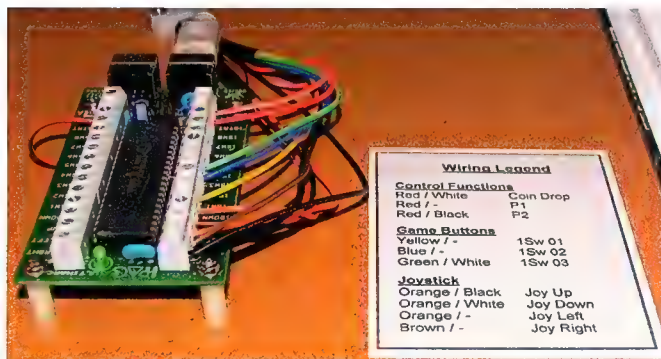
▲ It wouldn't be a case building tutorial without some active cooling!

An additional use was found for the exhaust fans during the first shakedown run; they are a great way to dry off sweaty fingers between game levels!

The next task was to wire up the gaming hardware, starting with the controller buttons. All of the switches have commonality; that is, they are really just differently shaped and/or coloured buttons actuating the same micro-switch. In the case of the LED illuminated P1, P2 and coin drop buttons there is also a separate 12V wiring loop powered by the power supply. The micro-switches (inset) have three male spade contacts – NO (normally open), NC (normally closed) and a common, or earth. In a standard installation, you'll want to connect wires to the 'NO' and 'common' contacts of the switch, so that the circuit is live when you press it. Connect all of the 'commons' together, and individual wires to all of the 'NC' connectors, and they are ready to be screwed into their respective I-PAC keyboard encoder ports. The joystick is also simple to connect, as each of the four planes has a micro-switch attached with a positive and common contact. Repeat the above wiring steps and route the wires to the encoder.

We recommend using the OzStick wiring kit, which consists of 28 colour-coded 75cm wires with female spade connectors at one end, and seven sets of black, 4-connector 'daisy-chained' earth leads. This makes the wiring process easy, and the colour-coding makes it simple to compile a wiring legend. Print the legend on a decal, stick it next to the I-PAC, and never have a problem with fault finding again!

What is an I-PAC? The I-PAC (Interface for PC to Arcade Controls) is a printed circuit board which uses a Cypress CY7C63413 microcontroller chip. The chip is programmed with code written in the chip's native RISC instruction set language to facilitate connection of arcade controls to a keyboard (or USB) port on a PC. There is no multiplexing or sharing of input ports as all inputs have their own dedicated pin on the chip, and it works in DOS, Linux, Mac and Windows environments. It was designed around the MAME software, and therefore is an intuitive connection in its default format, however its functions are also programmable. The input ports on the PCB are clearly



▲ Colour-coded wiring and cable sleeving keeps everything neat and tidy.

marked, and the wires are secured in place via a 5mm screw tag strip. It is a good idea to tin the ends of the wires with solder to help with longevity.

Once we tested that everything was wired-up correctly, we fitted cable sleeving over the loom, broken up into their three function groups - control buttons, joystick and action buttons. Apart from the obvious aesthetic reasons, having the wires bound together helps to add additional mechanical strength against individual wires being pulled off their sockets.

A good glassing

One of the final steps is to fit the screen glass, which will help to protect the LCD as well as make the unit easy to clean. Problem is, ordinary glass becomes a fantastic reflector when it has a dark colour behind it, and that's incredibly distracting when you're gaming.

The answer is to use 'non-reflective acid etch glass', which performs exactly as the name implies! Acid etch is almost completely opaque when held a short distance away from the screen, however as soon as it is within 5-6mm of the LCD bezel the effect disappears and the on-screen images are sharp and clear. We chose to use 2mm thick glass, but it is available in 4mm, which would be more durable if you have a habit of punching screens. Timber 10 x 12mm glazing edging was painted flat black and nailed to the outer skin on each side of the screen, with a small amount of silicone used along the glass to secure and absorb vibration. Although not shown here, a small sticker outlining the control instructions was printed and placed under the glass before final fitting.

At this time we also decided that the light behind the marquis was too bright, making the image look washed out, and in need of more colour saturation. The answer was to paint the fluoro diffuser with blue 'Glass Frosting' spray paint, which lowered the light levels while adding saturation to the blue text on the marquis.

To finish off the cabinet, a 3mm thick aluminium checker-plate 'step' was fabricated and screwed to the last exposed section of the chassis.

It was time to organise some side-art. Many of the companies that originally owned the copyright of arcade games and their associated images have long since disappeared, but that doesn't mean that those rights were not acquired by someone else. Common belief is that the use of these images is allowable, but only for personal use.

We chose some suitable graphics from the myriad of MAME related websites that are dedicated to the preservation of arcade gaming history, and went with one 'Burger Time'-themed side, and the other with a collage of old favourites. Sign-A-Rama, Melrose Park, printed the images for us on self-adhesive vinyl, and we applied them by spraying the surface with a weak solution of water/detergent, placing the decal in position and then using a squeegee to smooth out the water and air bubbles from underneath. The final clean was simply a case of removing the protective paper from the decals, and wiping over the cabinet with glass cleaner and a soft cloth.

Final steps

With the cabinet complete, it was time to load up the MAME software and play! The question is, which OS and front-end software? It was at this point that we handed our system over to Chris Wigg, owner of OzStick and master of MAME. We gave Chris the brief of what we were looking for, and let him make the call on a set-up. In his own words:

"MAME32 is the Windows 'application' version of MAME, which contains its



▲ Non-reflective glass improves the gaming experience, and protects the LCD screen.



▲ A few decals and a checker plate step-tread makes our cabinet really look like a game machine.

own front-end. It is a great starting point for those new to MAME as it provides a familiar interface through which you can start to learn how MAME hangs together. Quite a few GUIs can be used to sit in front of MAME32, which lets the user customise the look and feel of their system - so it looks less like they are running Windows. I see this as especially important where you are creating an arcade cabinet setup, so the system starts up and goes directly into the front-end, which is then 'captive', and unfamiliar users are not tempted to play around outside the environment you want them to 'play' in.

There are also utilities out there that can be used to shut down the system when you exit the front-end. That way you can set everything up to work entirely off keyboard input (the I-PAC), so there is no requirement for a pointer device. I've seen a few cabinet setups where people have put in a trackball just so they can navigate in Windows, when at the end of the day they didn't need one.

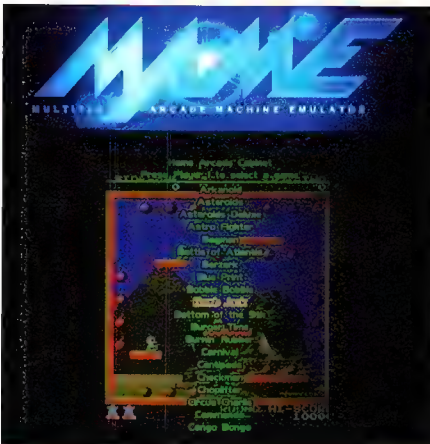
Alternatively, there is a Windows command line version that does not have its own GUI - so it only works in tandem with a front-end. Obvious pros of both Windows apps are the improved compatibility of drivers, familiarity so users are more at ease, and more choice. The best front-ends to use are MAMEWah, Atomic FE, GameEx and GameLauncher. The first two are very popular as they are skin-able and you can customise the layout as well as the look.

In my opinion, the best option for a robust machine is DOS - and the easiest way is to do a basic install of Win98SE, then drop in your DOS version of MAME and the front-end you wish to use. There is no DOS version of MAME with its own embedded front-end similar to MAME32, so you need to have a front-end that is configured to MAME and manages it correctly. Once the system is ready to go, just change a line in C:\MSDOS.SYS and it boots to DOS instead of Windows. There are two front ends that I have used and would recommend, being ArcadeOS and

GameLauncher. I use the latter on all my setups now as it has less features (so it is easier to set up), and no 'accidental' access to set-up menus through its GUI. This is great as it minimises the opportunity for 'guest' users to inadvertently tinker with it. Sound and Video card issues are more apparent in DOS, and the fact that the language has become a bit like Latin may scare a few people off, but I find that to be an advantage as it means people won't mess with it! The best thing about DOS is that shutting down is as simple as turning the cabinet off at the wall, and the next time it starts up it does so without fuss."

With that sort of recommendation, DOS seemed to be the obvious choice, and we have to agree that it works seamlessly, with quick boot-up times and a fully immersive, old school gaming experience. As Chris pointed out to us, all of the resources to do it yourself are only a Google away or, for the time-poor amongst us, OzStick offer a turnkey service to get you up and running immediately.

MAME - what a fantastic way to lose all of your spare time! 



▲ Software? We chose to trust an expert, and couldn't be happier with the outcome!

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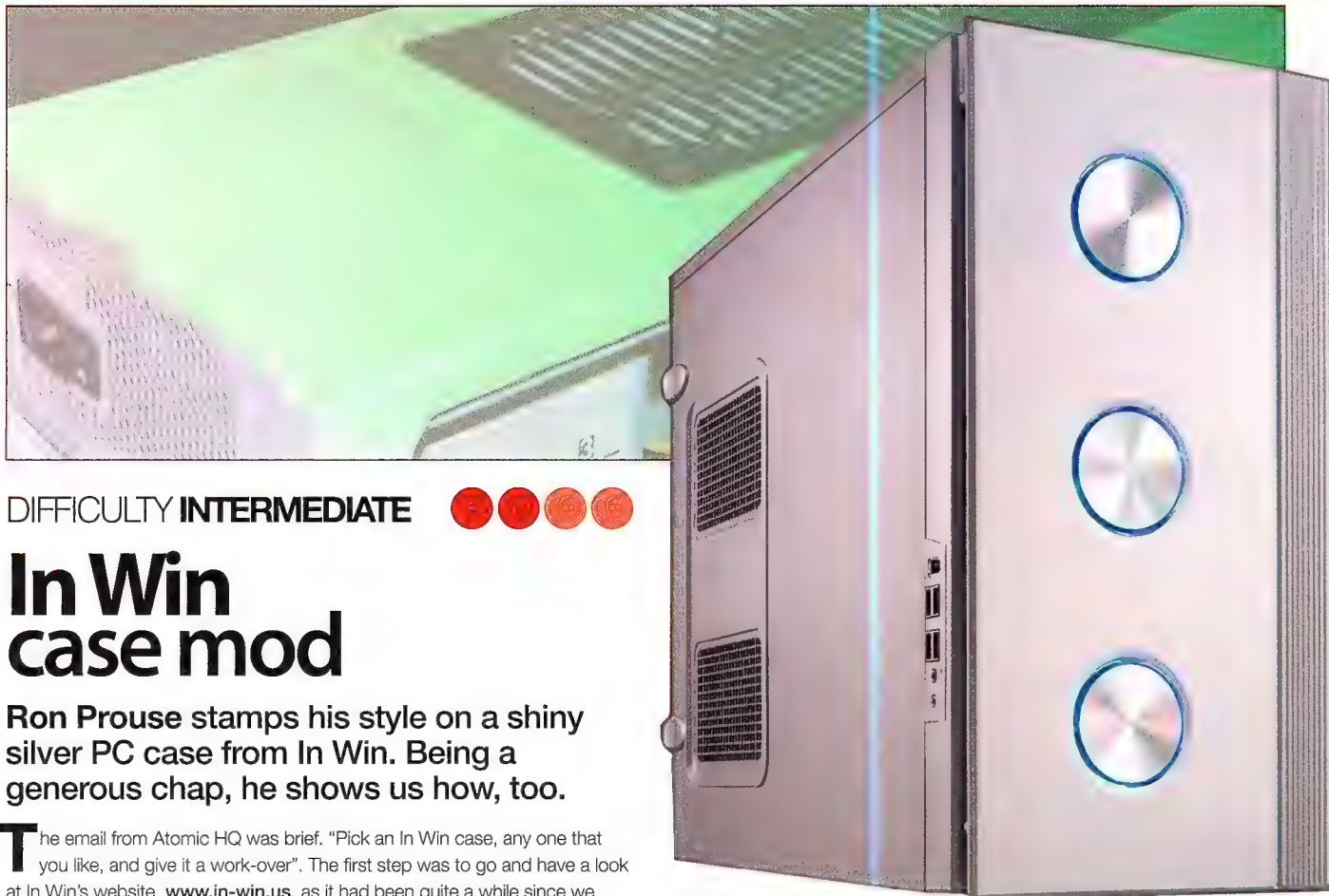
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DIFFICULTY **INTERMEDIATE**

In Win case mod

Ron Prouse stamps his style on a shiny silver PC case from In Win. Being a generous chap, he shows us how, too.

The email from Atomic HQ was brief. "Pick an In Win case, any one that you like, and give it a work-over". The first step was to go and have a look at In Win's website, www.in-win.us, as it had been quite a while since we had one of their cases on the workbench. After scrolling through an extensive list of cases, the final choice was a J-series mid-tower, called the AL-13 or O³, in silver. One look at the front door-panel should explain where the O³ name comes from. The 5mm thick aluminium front door, illuminated by blue LEDs, covers a plain silver bezel, with 4 x 5.25in bays and 2 x 3.5in bays. The front panel USB, FireWire and audio connections are located on the left hand side of the front bezel. The case itself measures 426 x 210 x 490mm (HxWxD), and according to the packing carton it weighs 12.8kg including the Power Man 410W power supply. The box was a shock to pick-up compared to

▲ The In Win O³ has a strong visual impact in its standard form, but what can we do to it?

some of the flimsy aluminium cases that we have encountered recently, as the chassis and side panels are fabricated of 0.8mm thick Japanese steel. This case is seriously solid!

Why did we chose the O³ model? While there are a large number of cases around that offer the buyer a pre-modded look, the hard part is to work the vision of the factory designer into your own personal taste. The O³ is one of those cases that has a strong visual impact in its standard form, and therefore it would be a bit more of a challenge to individualise it.

And a challenge is always good.

As the case was already colour-coded in an 'aluminium finish' silver, the decision was made to adopt a silver/black theme, which is a perennial favourite. The first subtle step was to remove the silver mesh grill at the



▲ The new front panel now has a heritage of its own, an etch of the In Win company logo.

SUPPLIES

InWin O³ Aluminium front ATX case

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- 1 x AC Ryan Meshx™ panel, \$35.00
- 1 x 120 Aluminium fan guard with filter (black), \$9.90
- 1 x 80mm Quad-Blue LED Fan, sleeve bearing, \$6.50
- 1 x Pioneer DVR-212D SATA drive, \$49.50
- 1 x Black 3.5in Panasonic 1.44MB Floppy drive, \$16.50
- 1 x Black Noise Isolator fan controller, \$25.00

TOOLS

The tools used in this tutorial are mainly those found in the average workshop, including a router, circular saw, jigsaw, mitre box, drill press and drills, block plane, electric sander, G-clamps and a grinder. The important thing is to keep the structure 'square' and 'level', so a set-square, sliding bezel and a tape measure are critical items to get all of the angles perfectly symmetrical. The main requirement is a decent bench or table, providing a solid, flat surface to operate on.

DISCLAIMER

Whenever you pick up power tools, cutting and grinding instruments, or even a can of spray paint, you are putting your general wellbeing at risk from some form of industrial level accident. We take every precaution by wearing appropriate safety equipment, using tools with respect and within their limits, and by not inhaling the contents of glue and paint containers. We suggest that you should follow a similar regime, and seek professional assistance and guidance if you are attempting a task outside of your skill set.

NB. atomic MPC and staff are not responsible for your safety or longevity.

bottom of the bezel, paint it black with automotive aerosol touch-up paint and re-fit it into place. The next step was a little more extreme – we removed the aluminium front panel and replaced it with a sheet of 6mm thick clear acrylic, seen here with the paper protective sheet still in place. The sheet was cut to size with a router, chamfered around the inner and outer perimeter, and then the edges sanded to a glass-clear finish using 1200 wet'n'dry sandpaper and Brasso metal polish. The sheet was drilled and tapped to accept the 3mm hinge screws and metal catch plate. To maintain the original orientation of the panel, the catch had to be positioned on a 25 x 7 x 3mm raised section of acrylic, glued to the inside of the main acrylic sheet.

As we had removed the 'signature' of the case (the three O³ illuminated rings) it was decided to give the new front panel a heritage of its own, by including an etch of the In Win company logo. The logo was downloaded, enlarged, and printed in reverse on a self-adhesive A4 label, which was then positioned and stuck onto the inner side of the acrylic panel. Using a Dremel flex drive and a fine engraving bit, the outline of the logo was cut through the paper into the acrylic, and the label and protective sheet peeled away in the area where we wanted the etch to be. The exposed surface was then sandblasted using fine garnet grit until it had the desired level of opacity. Etching the inside of the panel results in the (more often visible) outside retaining its gloss finish, and helps give the logo a 3-D effect.

Case modding means different things to different people, and the age old argument is 'form versus function'. Is the 'look' more important than the purpose, or should performance be the weighted criteria? Our attitude is that with some pre-planning the two concepts can, and should, sit comfortably together. So let's talk efficient cooling.

If the In Win case has one fault, that issue would be a lack of OEM ventilation. Forgetting the power supply fan for the moment, common practise these days is to fit a minimum of two 120mm fans, front and rear, which will move a lot of air through a case with minimal noise. This case comes



▲ Handles and wheels are a must for a LANing case – just make sure it has brakes.

standard with just the one rear 120mm fan, and the option of retro-fitting an 80mm fan in the front. It also has a passive side port (blow-hole) over the CPU area, known as the 'In Win Smart-3D Uni-Duct'. For a late model gaming system, this just isn't enough airflow. The two options are to either mess with the front of the chassis and create a larger inlet, compromising hard drive space and overall strength, or to create a 'negative pressure' (think vacuum) space that will suck a heap of air in through the existing holes. The latter is easily achieved by fitting an additional 120mm exhaust port at the top of the case. One of the less-obvious features of the O³ case now presented itself... the case top is easily removed by unscrewing two 3mm screws at the front. That makes it much easier to work on!

RadGrillz were originally designed to be used with water-cooling radiators, but they are perfect for adding fan(s) into the top of a case. They are neat, strong and the outside lip will hide all but the worst cutting mistakes. After checking that the chassis won't get in the way of the position of the intended hole, the top of the case was given a protective layer of masking tape and the 120 x 2 RadGrillz was placed in position. The 3mm corner mounting holes were drilled, and the area that needs to be cut away was marked out.

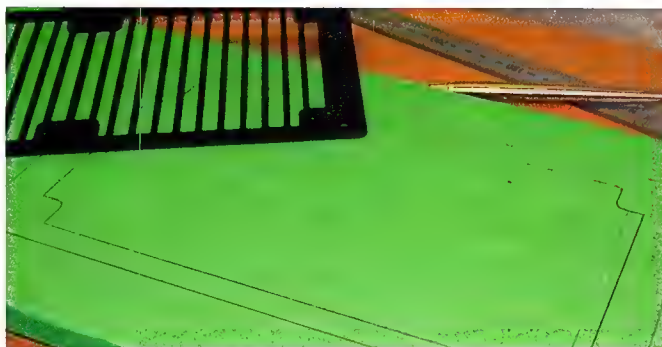


▲ It's the small things that will make your case unique.

The hole required is just a big rectangle, so the easiest way to cut through 0.8mm thick steel is with a 100mm grinder, using a 1mm thick cutting blade. How accurate is this method? Our initial cut erred too much on the side of caution, and we needed to remove an additional 2mm all round so that the edges of the cut weren't visible around the inside of the grill... in the top right of the picture you will see the 2mm slice being removed evenly, right into the corner. With a little practice, a 100mm grinder is as controllable as a Dremel!

Once cut, the exposed steel edge was de-burred, sanded and painted silver to camouflage and stop it from rusting. Although a single 120mm fan is going to be used, a 120 X 2 RadGrillz was fitted to make a more dramatic statement and fit in with the 'big, black blocks on a silver background' theme.

A solid case needs a serious pair of handles for carrying it to and from LANs. A pair of 295mm aluminium-finish handles were fitted, lined up so that they were level with the front of the blow-hole and extending back to the power supply. The holes were drilled through the case top, and shallow recesses drilled directly under them so that the screws would clear the



▲ RadGrillz were originally designed to be used with water-cooling radiators, but they are perfect for adding holes in a case.

chassis rails. Normally we would attach the handles to the rails for additional strength, however the 'flip-top' attribute of the case is something that we want to preserve, and the top is strong enough to suspend the weight. To aid the portability of the box, especially for those atomicans with more brains than muscle, a set of castor wheels was added. The OEM case feet were removed, four 1/8in holes drilled in each corner and the wheels riveted on. Make sure that at least one of the castors features a 'parking brake', or live in fear of a runaway case.

Now we'll take a look at the rear of the case. In the name of more efficient cooling, the original pressed fan guard was cut away with a Dremel and the edges rounded out and over with a drum sander. The original fan was replaced with a 120mm Artic Cooling unit, which moves an impressive 56.3CFM of air at a mere 24.5dBA, and a chrome fan guard fitted to add some additional 'bling'. It may not be much, but it is the culmination of all of these small touches that will make your case an individual effort.

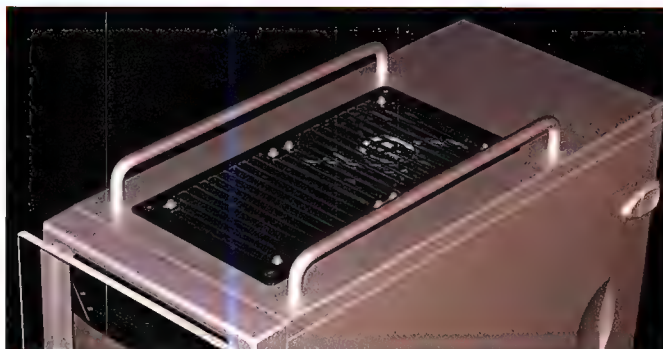
The next bolt-on is a CoolerMaster 4-in-3 Device Module, which takes up three 5.25in bays and will hold four hard drives. It's all aluminium/plastic in construction, and comes with a 120mm blue LED fan at the front. There are several of these types of bay inserts on the market, however we chose this



▲ Keeping synergy in the overall 'look' will help achieve a professional finish.

one as the front facia is very similar to the bars on the RadGrillz – the more that the overall 'look' can be tied together, the more the final outcome will look like a factory finish. That is not just the 'form' dynamic taken care of, but also the 'function', as the rear of the module is directly below and in front of the top blow-hole fan. Any heat generated by the hard drives is pushed through by the front fan and immediately exhausted by the top fan. This keeps one more heat source separate to the volume of the main case area. The only annoyance is the predominant CM logo on the aluminium faceplate, but previous experience tells us to leave it alone... and 'shop it out of the image later!

Time to attack the side-cover! The promise that we made to ourselves at the planning stage was, 'No window, no cathodes!'. Like so many cases on the market, the O³ has an open mesh panel on the cover adjacent to the processor area – home of the aforementioned 'In Win Smart-3D Uni-Duct'. It is functional, but it really doesn't fit with the new style that we have created. In a perfect world we would have achieved symmetry by replacing it with another 120 X 2 RadGrillz, but the opening was too wide. Using a nibbler, both sections of mesh were removed, and the edges of the holes smoothed using a Dremel drum-sanding wheel, file and sandpaper. As the inner lip of the holes will be visible around the inside of the original plastic shroud, the obvious section of the panel was painted with black aerosol paint. The next step was to fabricate an inner mesh panel to go behind the shroud. Using a



▲ Perfect for water-cooling, the top panel could hold a 240mm radiator securely, but still be removable with two screws.

silver Ryan Meshx™ panel, a 280 x 210 x 15mm 'basket' was fabricated and painted black, and then attached to five 15mm stand-offs mounted to the inside of the side-cover, with the screws countersunk and concealed behind the outer shroud. The outcome is that the mesh sits 15mm back inside the opening, giving a great 3D effect, and completely seals around the edges of the gap.

A 120mm Artic Cooling PWM fan was fitted to the rear opening of the RadGrillz, and the front section fitted with a black mesh panel. Polished stainless-steel, 3mm Allen head screws were used, making a feature out of the fasteners. The RadGrillz was attached to the case top with black 1/8in rivets, and the assembly fitted to the chassis for the final time. If you were using water-cooling in this case, the top panel could hold a 240mm radiator securely, but retain the advantage of being removable with just two screws.

The final finish of the front bezel was a continuation of the 'big, black blocks on a silver background' theme, using a black DVD drive, floppy and Noise Isolator fan controller. The original concept of this tutorial was to change the aesthetics of the case and add additional cooling functionality to the design, and there is no doubt that we have achieved that goal. Is the final case better looking than the original? That is in the eye of the beholder, however what has been illustrated is that your only limit is imagination. 



▲ The airflow has been increased with two additional 120mm and one 80mm fan, adding more than 100CFM of active cooling.

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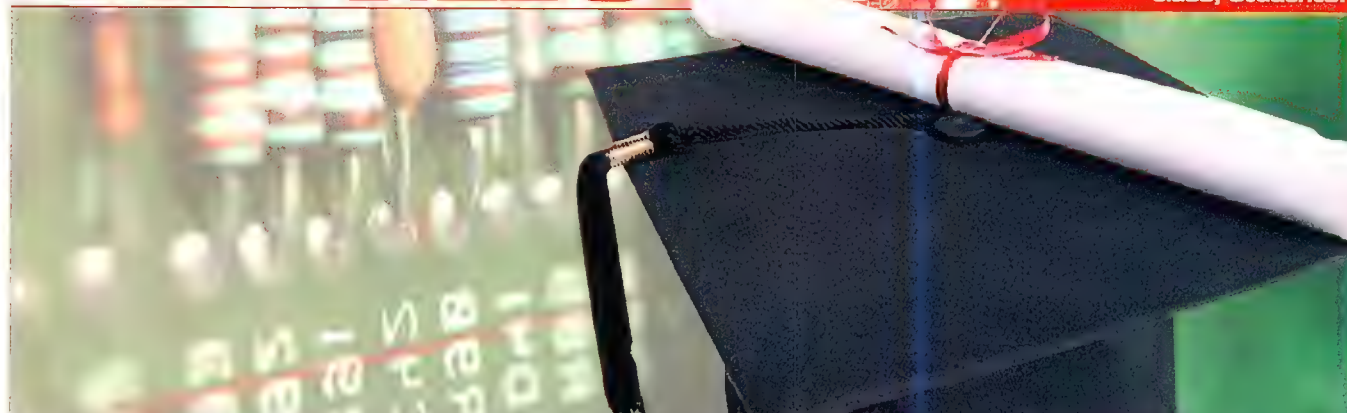
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Getting into the IT industry

Chris Taylor looks into what it takes to get the job of your dreams.

So, you're giving thought to studying IT at a tertiary level, but one thing is holding you back – the fear that maybe there won't be any jobs available for you. Or that there will be, only they'll pay you the sort of wage you'd get as a checkout chick to work in the shittiest of conditions. The promotional literature handed out by the universities you're looking at no doubt promises that by doing their degree you'll end up in a world of opportunity, but can you really trust that? After all, a university is a business. And you're just another potential customer. And so, this month in atomic.edu we've decided to investigate how easy it is to get a job in the IT industry. Once again we've turned to our own forums to get comments, feedback and advice from the people most qualified to answer your questions about getting into the computing business—those who already work in it.

Will I be able to get a job?

We're pleased to report that the resounding answer is yes. "The IT market in Australia seems to be very open at the moment," says Slace. Are there jobs for those fresh out of TAFE or university, though? If you've looked at sites like www.seek.com.au and www.careerone.com.au – which we really suggest you do, by the way – you may have noticed that a lot of the jobs out there are only being pitched for those who've been working on 'nix servers since they were six. But never fear, there are plenty of jobs available for newcomers to the industry. As *MrInsaneBuff* says, "Where I am currently, as long as you're not a retard and have decent customer service skills, we'll take you on. It's first level help desk. We generally bring in about six to eight new people each month, as we have

a high churn rate. Generally it's more to do with working nights than anything else."

Will I need a degree or diploma to get a job?

Now, whether you need a degree or not to get a job depends entirely on what field you're looking at, as well as the workplace, your experience, who you know and the alignment of the planets. "A degree will look really good on your resume," says

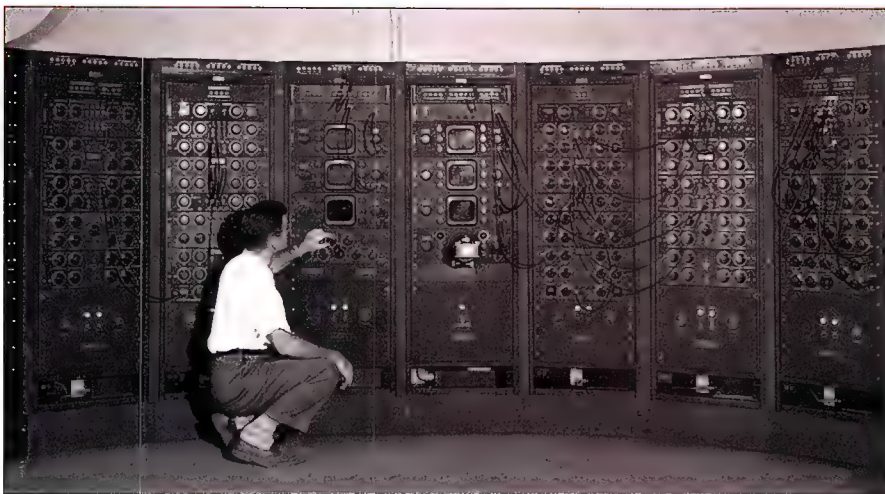
RaYdeX. "Should you be up against someone with the same skills as you, only you have a degree and they don't, you'll more than likely get the job."

These sentiments were echoed by *MrInsaneBuff*. "Having a degree gives you options. It's not, however, a get-a-job-in-IT card. If you're unable to communicate effectively and aren't some super genius, you'll find it hard to get a role."

Worth considering, though, are these words by *zephyr*. "As the IT industry matures, there's going



If only getting into the field was as easy!



You may not be able to get work that is exactly ground-breaking, like this dapper fella, but with IT continuing to expand, there's a constant need for clued up IT workers.

to be more of a divergence between which roles do need degrees and which ones don't." *Chaos.Lady* had this warning for those who intend on not studying, but working their way up from an entry-level technical support position. "As you get older and try to go higher up the tree, you start to go up against people who have qualifications and experience. Only having experience will lose you the position in most cases." Beyond your degree or diploma, you may want to look into what *RayDeX* terms 'non-government' training courses and certificates – MCSE, Cisco and the like. "Courses can cost several thousand dollars, but [they're] almost a necessity to get into network administration." *kikz* noted that a cheaper alternative would be to purchase the books from www.amazon.com and study at your own pace.

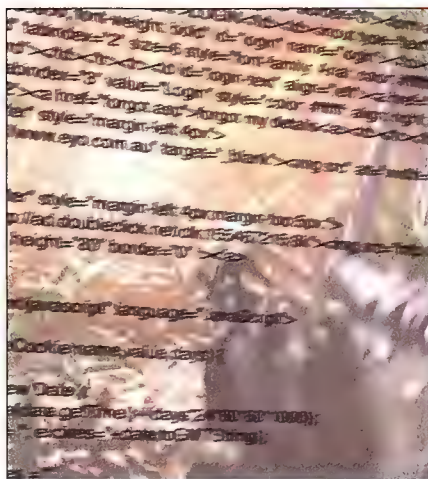
Basically, what our forum-goers say is this – certainly, it's possible to get a job in computing without a degree, but to get a decent job you're probably going to need a degree of some sort. There are exceptions; yes, there are quite a number of people posting on our forums who've managed to score well-paying IT gigs without having finished university or, as in at least one case, secondary school, but in general you're going to want to be qualified. "You can't assume that because you can go from hell desk to network manager that you could go the same path and end up an enterprise architect," says *zephyr*. "It can happen, but to tell people 'no, you don't need to know anything about it, just figure it out on the job' is giving people a sense of false hope."

What about pay, location and the like?

One point that did pop up a number of times in my discussions was that the ability to find employment depends greatly on where you live. Indeed, it was possibly the only piece of advice on which all participants in our survey agreed upon. Canberra, Melbourne and Sydney were branded the places to be by *Gharphield*. *Chaos.Lady* backed him up, saying that "[getting] a job in IT is almost impossible unless you live in or near a major centre. Telecommuting is still not as widespread

as it should be." Finally, there is the matter of income. Now, we didn't get as many responses to this part of our survey as we'd hoped, but *kikz* – although he's talking purely from the perspective of someone involved in coding – reckons that the "average student graduating from IT into an average software development job should see an average \$40,000 straight out. If they keep learning they should be on \$60,000 or more in two years." In summing up, yes, you should be able to get a job – entry-level tech support being the most realistic for a newcomer – in IT. Once you have that job, you may be able to move up the ladder without any qualifications whatsoever. However, and this is a very big however, don't rely on that.

Do yourself a favour and get a qualification of some description from TAFE or university. After that, look into some of the vendor-specific certificates available. Getting your hands dirty is important, yes, but as noted numerous times in the thread, not everything can be learnt by simply playing around on the job. Note: If you are looking at getting into IT and found some of the points raised in this month's *atomic.edu* interesting, we recommend checking out the thread (www.atomicmpc.com.au/forums.asp?s=1&c=1&t=115924). There's a lot of stuff we had to leave out due to space restrictions. 



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I/O

Daniel Rutter's back and he's on a divine mission – to help readers with their problems. Bless.

I/O OF THE MONTH

Microsoft.sucks.com is also taken

While searching for some info on exmerge for Microsoft Exchange, I typed 'exmerge' into Google and clicked the top link.

Firefox came up with a certificate warning saying that I was attempting to contact a domain called 'thesource.ofallevil.com', that was using a certificate belonging to Microsoft!

Trusting my antivirus and firewall settings, I proceeded to click to see what was going on. Sure enough it looks like a valid MS page, but all the links pointed to thesource.ofallevil.com.

I just thought it was odd that this obvious fake was so high in the Google hits.

Seth

Thesource.ofallevil.com looks like a Microsoft site... because it is a Microsoft site!

You're just reaching it via a different DNS entry, which is what causes the certificate mismatch.

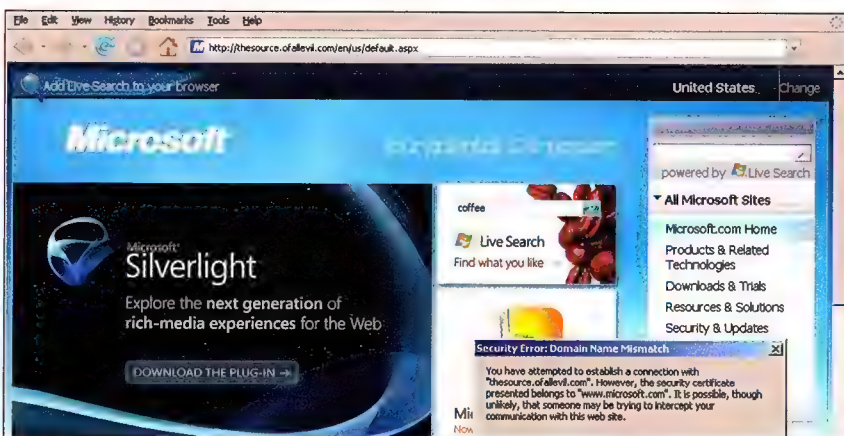
Whoever runs ofallevil.com pointed the DNS info for his various subdomains to the sites of major companies. The DNS record for thesource.ofallevil.com, for instance, points to

www.microsoft.com. So thesource.ofallevil.com appears to have every Microsoft page on its own 'site'.

There's also theroot.ofallevil.com, which points to VeriSign. Only if you ask for www.ofallevil.com or ofallevil.com will you get a site (and a blank Web page) actually belonging to this prankster.

Whoever runs ofallevil.com doesn't even know when you've visited one of the prank 'sites'. Your browser asks DNS what IP address thesource.ofallevil.com is, and DNS tells it that it's 207.46.193.254 (or whatever other Microsoft server comes up in the round-robin sequence), just as it would if you'd asked for www.microsoft.com. Then your browser starts asking that IP address for Web pages, and getting data from the Microsoft server. The ofallevil.com guy is not part of the conversation.

This is only a security concern if the ofallevil.com guy takes advantage of his high search engine position to start delivering actual forged pages from his own server. He got his high PageRanks because lots of people absently linked to ofallevil.com URLs rather than the genuine ones. Just recently, though, Google noticed him and trashed his PageRanks again.



▲ I wonder how many people actually do 'notify the site administrator'.

I/O OTM wins a Logitech G5!

There's a mouse in the house. Okay, it's not in the house, it's in IO. And it looks damn good.



Welding helmet probably not needed

Playing the likes of Oblivion a year ago wasn't a very visually exciting affair, since I was still running a dusty and rusty GeForce 4 MX440. But now I glee with happiness, for I have my new ATI X1950 Pro 512Mb.

Well, sort of glee anyway. After only an hour or so of playing, with HDR enabled of course, I noticed the in-game sun. I found it rather disturbingly bright.

We're told not to look at the sun in real life because it'll cause permanent damage, but this got me thinking about how these new lighting techniques in games might affect gamers.

I get headaches from Oblivion HDR, so I choose to look down and not gaze at the skies, or turn HDR off. But that kind of ruins the other lighting in the game.

Is this some placebo trick my mind is playing on me, or can HDR game lighting actually seriously discomfort people?

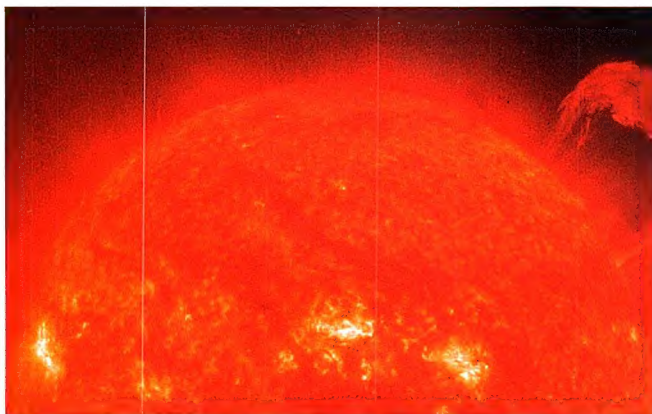
Jason Terris

No software can make your monitor brighter than normal. Run a word processor, open a new blank white document, and that right there is the brightest white your monitor can display, with its current brightness setting.

HDR rendering in games calculates the on-screen image using a larger dynamic range than any monitor can actually display. Cunning algorithms are then used to map the result onto the monitor's actual colour gamut, to give a more pleasing image.

If the rendering engine decides that the best

ON EARTH EVERYONE
CAN HEAR YOU SCREAM



▲ "I think your gamma's set too high, dude."

way to go is to make the area of sky around the sun into one big white blob, then the in-game 'sun' may look more striking. But none of that white blob is any brighter than a blank word processor page.

Lots of people do, however, suffer from eyestrain when they're using their computer. The single most common reason for that, today, is excessive brightness.

Modern LCD monitors, in particular, often have very high maximum brightness. This super-bright backlighting is handy if you have to use the computer in a sunlit room, but for the average indoor computer user, even during the day, it's far too bright.

Your monitor should actually be no brighter than a well-lit book. For a lot of modern monitors, that means turning the brightness as far down as it'll go.

There are plenty of websites that'll help you set up your monitor properly; try starting at <http://epaperpress.com/monitorcal/>.

It's also not crazy for ordinary home computer users to get a proper hardware monitor calibrator. Calibrators used to cost several hundred dollars, but now you can get a Pantone 'Huey' calibrator for little more than a hundred bucks.

You don't need a calibrator if you're just playing games. But if you're even a casual digital photographer, a calibrated monitor can make a big difference.

VESA Local Bus cards also a problem

I I've heard that a PCIe 2.0 motherboard is backwards compatible with PCIe 1.0 video cards. My question is, does a PCIe 1.0 motherboard support PCI-E 2.0 video cards?

Steve Q

O A PCIe v1.0 motherboard won't work with a PCIe 2.0 video card. A PCIe v1.1 motherboard, on the other hand, should be fine. It'll only allow the v2 card to communicate at v1 speed, but like every other bus speed bump since the days before AGP, this won't make much difference.

Generally speaking, recently released motherboards should all be either PCIe 2.0 or PCIe 1.1. There are some oddities, though, like Asus' recent P35-chipset enthusiast boards, only one of whose two full-length PCIe slots is PCIe 1.1 compliant. The other one's only PCIe 1.0.

Combined diagonals: 80 inches

I Can you use dual DVI links (as needed for monster screens) and the TV out on a video card at the same time?

Mark

O Yeah, I think so. You can't have two monitors and a TV all running at once from a standard two-DVI-plus-TV graphics card, but dual-channel DVI output only counts as one monitor.

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Assassin's Bread

Logan Booker bakes himself a mean tiramisu

'I'm good at my job, don't you think?'

Like a pig on a spit, Felfallo slowly turned the question over in his mind, considering its succulent juices from every angle. The only difference was he couldn't eat his answer, or even marinate it with honey and soy and carefully digest it in his own time. No, he needed a response right now.

'Out of ten, I'd give you an, er, 11.'

Smooth, Felfallo told himself with a grimace.

The master assassin sighed into his white hood before staring out into the cool, clear night. What went on in the man's head, Felfallo would

never know. Heck, he barely knew what was going on in his own mind - at least, when it wasn't full of roasting animals leaking conundrums.

'I should not have killed that man tonight, Felfallo,' said Altair. 'It's not my place to decide who lives or dies.'

Felfallo coughed in disbelief. 'What do you mean? That is exactly your place! You're an assassin.'

'I used to bake, you know.' Altair started moving his hands in the air, as if he were kneading an invisible ball of dough. 'I did cakes rather well.'

Felfallo almost fell from his perch. He kept

forgetting they were sitting on the second-highest ledge in the city. Why they couldn't meet in a back alley, or even his house... another mystery for the ages.

'Can you kill a man with a cake Altair?'

'Kill? No. Make him gassy? Yes. I made a cheesecake once that almost suffocated Mrs. Potts. Well technically it was the machinations of Mr. Potts love of cheesecakes that was the culprit.'

'If you loved baking so much, why are you out here assassinating people?'

'The cakes stopped talking to me.'

'Well, that's probably a good thing, seeing as they're not supposed to.'

'No,' Altair shook his head. 'I mean... well, they stopped singing.'

'They're not supposed to sing either. In fact, a cake's not meant to do much at all, except melt a little in the sun.'

Altair slammed his fists down on the ledge. 'You don't get it, Felfallo! A craftsman speaks to his creations. Without that line of communication, there can be no art.'

'So you talked to the cakes?' Felfallo asked tentatively.

'Yes.'

'And... and they talked back?' Altair nodded.

'And then, one day, they just stopped.'

Altair nodded again. 'The thing with people is, they always talk.'

'Well, that's true,' Felfallo agreed. 'Until, of course, you plunge a knife into their back. Then they just do a bit of screaming and gurgling, and then not much talking at all. In fact, it's a sure fire way to make sure they do everything but talk. And breathe.'

'So I have control over my craft once more. That's why I'm an assassin now, Felfallo. The control.'

The two sat in silence for a few minutes. It was Felfallo who eventually broke the silence.

'You know, most assassins leave a feather dipped in the victim's blood as a calling card.'

'I find Pavlova takes the edge off the grief for the relatives.'

Felfallo just nodded.

NEXT MONTH



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Take a look at the Penguin side of gaming with our in depth feature on the state of getting gaming out from under the deep dark shadow of Windows.

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